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A short historical record of District No. 417, Morris County, Council Grove, Kansas, and their comprehensive set of educational specifications. Every secondary teacher within District No. 417 had been assigned to a committee. George W. Reida of the State Department developed a schedule of meetings for these committees and secured consultants to meet with these groups. From these meetings and consultations, the staff developed the specifications as presented. Specifications are included for the following--(1) administration, (2) school library material center, (3) audio-visual center, (4) art, (5) music, (6) business education, (7) language arts, (8) speech, (9) auditorium, (10) foreign language, (11) mathematics, (12) social science, (13) drive training, (14) science, (15) home economics, (16) industrial arts, (17) physical education, (18) special education, and (19) school lunch. (RK)

ED027725

Educational Specifications

for

SENIOR HIGH SCHOOL

UNIFIED SCHOOL DISTRICT NO. 417
Morris County, State of Kansas
Council Grove, Kansas 66846

March, 1966

Otis N. Henderson, Supt. of Schools

EF002870

UNIFIED SCHOOL DISTRICT NO. 417
Morris County, State of Kansas
Council Grove, Kansas 66846

EDUCATIONAL SPECIFICATIONS for SENIOR HIGH SCHOOL

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Harold Johnson, President
John H. Falen, Vice President
Keith R. Morgan
Kenneth R. Allen
Ervin Eldred, Jr.
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1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PHILOSOPHY

Education is the acquiring of knowledge, the understanding of one's self, society, and the interrelation between the two. Education should strive to develop an individual that is democratically oriented, socially enlightened, occupationally competent, and culturally informed that will contribute significantly to society. Methods of instruction utilize all the communicative tools at our disposal. These goals may be realized through a cooperative student-teacher administration relationship, working in an atmosphere of mutual trust and respect as a team moving toward common goals.

AIMS AND OBJECTIVES

1. To develop a comprehensive, flexible curriculum that will give students many and varied opportunities.
2. To acquaint the student with problems concerning our society.
3. To make the school a meaningful place for students by trying to relate the school to reality. To place the student in the "main stream" of life.
4. To acquaint the community with the many facets of the school program, and to make the school a part of the community providing facilities and services for community use.

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INTRODUCTION

Unified District No. 417 became a reality in July 1965. It was an organized, legal school district with a year to plan and prepare for full operation beginning July 1, 1966. Unified District No. 417 is situated in the east central section of Kansas. It lies primarily in Morris County but also includes a part of Lyon, Wabaunsee, and Geary Counties. There are four towns included in District No. 417: Dwight, Wilsey, Dunlap, and Council Grove. There were nine separate and distinct school districts included in Unified District No. 417: Dwight Elementary, Dwight Rural High, Wilsey Elementary, Wilsey Rural High, Council Grove Elementary, Council Grove Rural High, Dunlap Elementary, Four-Mile Elementary, and Beman Elementary. There were portions of other districts included within District No. 417.

Unified District No. 417 encompasses some 465 square miles and has over 15 million valuation. In the school year 1966-67, there will be approximately 804 elementary students, kindergarten through eight, and approximately 370 high school students, grades nine through twelve. A projection of the student population for the next few years indicates the population will tend to remain stable. (See Table I)

District No. 417 is bounded by some five unified districts. Of this number it was determined (from a study of their student population, geographic location, valuation and sociological factors) that perhaps three were "marginal" districts and would quite possibly be dissolved and attached to other unified districts in the near future. District No. 417 would be in a position to absorb parts of these districts.

In the early months of planning in District No. 417, it was obvious that two of the elementary schools were far below minimum standards and needed to be closed as soon as possible. It was determined to attempt to close these schools by means of a special meeting and election, rather than by petition. The elections were called and in both districts (Four-Mile and Beman) the elections carried by a decisive margin.

It was also apparent that of the three existing high schools, only one (Council Grove) was large enough to make a serious effort toward offering a comprehensive educational program; it was also apparent that Council Grove High School was operating at near capacity. There were serious doubts as to the adequacy of the facilities in every district within Unified District No. 417.

George W. Reida, Director, School Facilities Section, State Department of Public Instruction, was contacted and an evaluation of existing facilities within District No. 417 was requested. This evaluation was conducted and during a special session of the board on December 7, 1965, Mr. Reida and Mr. Jay J. Scott, also of the State Department, reported their findings in detail. They answered questions raised by the board members and encouraged the board to take decisive steps to provide an excellent instructional program for the children in District No. 417.

The board of education of District No. 417 was in complete agreement that children in District No. 417 were entitled to the best educational program we could provide. To carry out this philosophy it was determined that immediately we would proceed to do the following:

1. Operate the three high schools for one more school year, the 1966-67 term. (Until an adequate facility could be provided.)

2. Select a competent architect to assist in the planning, design and erection of adequate facilities for Unified District No. 417.

3. Build and equip a new high school facility adjacent to the City of Council Grove (largest population center) for occupancy in the fall of 1967.

4. Remodel the existing high school facility in Council Grove for occupancy by the upper grades in Council Grove (perhaps grades 6, 7 and 8). This "middle school" would relieve the extremely crowded conditions which presently exist.

5. Develop a curricular offering so that a truly comprehensive program could be offered.

GENERAL SPECIFICATIONS

The board of education, believing a competent architect was a primary concern in planning an education program and adequate facilities, interviewed a number of architects and several facilities over the state were visited. The board, after careful consideration, by unanimous vote selected the architectural firm of W. I. Fisher and Company of Wichita.

The board of education with their superintendent developed a tentative curricular offering. This curriculum was a reflection of our philosophy and was tentative in that it was subject to revision as later studies might dictate.

Upon selection of our architect, a preliminary survey was conducted and it was our immediate task to develop a comprehensive set of educational specifications. Thus the door was open for this short historical record of District No. 417 and these educational specifications.

The board considered hiring outside firms to conduct a study and write educational specifications. It was the belief of the board that we presently had competent people in charge of the schools. These folks were likely to be more aware of specific problems within District No. 417 than persons living some distance away, and it would be a great waste of talent to not include these people in the planning and writing of educational specifications. Thus every secondary teacher presently within District No. 417 was assigned to a committee. This committee was charged with the task of writing educational specifications for a particular area. George W. Reida of the State Department, developed a schedule of meetings for these committees and secured consultants to meet with these groups. From these meetings and consultations, the staff in District No. 417 has developed these specifications.

Some basic assumptions for consideration by the committees included:

1. The new senior high school facility should be planned to accommodate approximately 400 students in grades 9 through 12.

2. The curricular offering would approach 70 units of instruction.

3. The student-teacher ratio would remain fairly constant. There is no minimum class size at this time.

4. Planning at this point should reflect the most desirable facility.

5. The committees should primarily concern themselves with describing in detail what would happen in the various departments - the architect could then design a structure which would house this activity. (Any supporting sketches, or other diagrams are welcome.)

6. It is intended that a facility be provided which will reflect the present and the future and not be a facility reflecting the 1940's or 1950's.

7. Every committee member is urged to visit other existing facilities prior to writing specifications.

With these basic assumptions, the committees set to work to develop the educational specifications which are found in the following pages.

The educational specifications were prepared by the Council Grove Study Committees after their discussions with the Curriculum Consultants from the State Department of Public Instruction and other advisors. It represents their own thinking and conclusions.

Table I

Projected enrolment of Unified School Dist. #417

District	pre-school					grades												
age & yr. born	under 1 1964	1-2 1963	2-3 1962	3-4 1961	4-5 1960	1	2	3	4	5	6	7	8	9	10	11	12	total
C. G. Elem	25	42	42	35	49	46	52	50	55	50	58	49	48					601
C. G. RHS														69	44	61	50	224
Beman Elem	0	1	1	0	2	1	0	2	1	2	3	1	3					17
Four-Mile Elem	2	3	2	1	0	0	2	2	1	0	0	0	1					14
Wilsey RHS														21	17	10	11	59
Wilsey Elem	8	10	4	12	9	19	11	16	16	12	20	14	11					162
Dwight RHS														16	21	17	13	67
Dwight Elem	8	12	8	14	9	15	11	20	16	14	15	24	15					181
Dunlap	5	6	9	4	8	6	13	4	6	13	9	12	13					108
total	48	74	66	66	77	87	89	94	95	91	105	100	91	106	82	88	74	1433

this year 65-66 ------350-------
next year 66-67 -------367-------
67-68 ------379-------
68-69 ------402-------
69-70 ------387-------
70-71 -------391------
71-72 ------385-------
72-73 ------369-------
73-74 ------365--------
74-75 -------347---------
75-76 -------319--------
76-77 -------296-------
77-78 ------283------
78-79 ------254-----

ADMINISTRATIVE AREA - SUPERINTENDENT'S OFFICE

Considering the size of our proposed school it is felt that these administrative offices should be incorporated within this school facility. This area should be on a ground floor level, it should stress hospitality and, of course, easy access is important. It is designed to receive and accommodate visitors to carry on routine office work such as record keeping, duplicating materials, provide adequate facilities for board meetings and to allow for visitors at these meetings. The superintendent's office should perhaps be adjoining the board room separated with some sort of a folding door, preferably one which would be nearly soundproof. The secretary's quarters would, of course, be located in close proximity. We feel the first responsibility of the schools is to provide a truly educational climate and secondly it is important to provide information and assistance to parents and to continually interpret the schools to the people.

Trends

There is an increasing complexity of records. There is a trend toward larger units of administration. There is greater demand for detailed records. There is increased mechanization of record keeping functions. There is of course an improved communications, increased services to pupils and parents and increased centralization of services. It also appears that there is a definite trend toward the extension of the school year and the school day. There is also a definite trend toward more adult education programs.

Activities

The activities carried on in this area will be the receiving and accommodating of visitors, the usual clerical duties and the storage and maintenance of records. Within this area will be housed a superintendent and of course there will be individual conferences and conferences with small groups. Within this area will be held the board meetings and provision here should be made for ample space for visitors to attend these meetings. Within this area should be incorporated some sort of a communications center.

Equipment and Space Requirements

In the waiting room area coat hangers and hat racks should be provided, a refrigerated water cooler and accommodations for at least six persons to wait in a comfortable and partially separated area from the secretarial area. This waiting area should be decorated tastefully with a pleasing color scheme as it is important to present a friendly and hospitable atmosphere. In all areas in this administrative complex there should be an ample supply of electrical outlets. The entire area needs to be acoustically treated and it needs to be air conditioned. The receptionist should be provided with an L type desk, typewriter, duplicating machines, file cabinets, storage cabinets, and easy access to a storeroom. This area should also have easy access to the superintendent's office and to the board room. Restrooms should be provided in this area and the stools need to be equipped with the silent flush type. In close proximity to the receptionist should be a sink with hot and cold water and some cabinet space. The area needs to be properly lighted for fine work, perhaps 100 foot-candles of light. It would be desirable to have the superintendent's area with an outside view. It needs to be equipped with desk, storage cabinets, communications equipment, access to the secretary's area and the storeroom, and as mentioned previously, a movable wall between the superintendent's office and the board room. The board room needs to be equipped with a conference table and comfortable chairs. There should be easy access between the board room and the secretary's area and, of course, the superintendent's office. The storeroom should not be inconveniently located in reference to the board room.

ADMINISTRATION AND GUIDANCE

Administration

The objective of the administration of the high school is the coordination of all phases of the program designed to contribute to the fulfillment of the objectives of the school. In striving to meet the basic objective the administration will assume the leadership in supervision planning, curriculum development, plant maintenance, school budget management, school-community relations, communications, and record keeping.

Guidance

The guidance suite should consist of a counselor's office, reception room, and two counseling rooms. Each high school should have a counseling office for each three hundred students.

The guidance suite should be located close to the principal's office and the library with easy access to both.

Security in this department is very important so it should be soundproof. Piped in soft music would help in maintaining top security.

This department is an integral part of the school system. However, one of the physical differences is in its furnishings. They should be such that they have a non-institutional appearance.

The office should have a desk and chair for the counselor, carpeted floors, several comfortable chairs for guests, a telephone, several electrical outlets, tape recorded, and a clock that is not wired to the central bell system of the school. If there is an intercommunication system in the school, the device for reception should be in the reception room of the suite rather than in the counselor's office. In addition, there should be a lock filing cabinet and shelf space for the counselor's professional library and other pertinent material.

This office should have outside windows to help create a pleasant atmosphere. Many students using the services of this department are surrounded by their problems to such an extent that an enclosed, windowless room only adds to their disturbed emotions.

It is hoped that in planning this area the architect has the services of an interior decorator so that the wall colors, equipment and other furnishings will not have the appearances of an institution.

There should be an easy, casual, comfortable atmosphere that will be an aid to the person seeking help. This is purely psychological but in this department it is of the greatest importance.

The reception room - in fact, all the rooms in this suite should harmonize. This room should be adjacent to the counselor's office and should have a desk, chair, filing cabinets, display racks, clothes closet, bulletin board, and a telephone. There should be a davenport, several easy chairs for students, parents or anyone else seeking help or information. A planter would be a nice item in this room. The windows should have attractive drapes. These furnishings are not a tribute to the counselor but are actually some of the tools needed to do the job of this department. Everything about this room should contribute to a pleasant non-school atmosphere.

In addition to being a reception room, this is where appointments are made, the daily bookkeeping of this department is done, application for scholarships, applications for grants-in-aid, admission blanks, etc. are kept. Give-away material and catalogues of the colleges the greater percentage of the students attend should be here as well as in the library.

The bulletin board is an important part of this room for posting notices relative to scholarship and job opportunities, as well as other announcements.

The conference room in this suite should accommodate a table for 10 students, several comfortable chairs and should have about 4 individual, well lighted carrels along one side. It should also have a built-in screen or white wall space where films could be viewed. This room could be used by the principal, staff, and students as well as the counselor.

Short films should be available on such subjects as job applications, what to do when going for an interview, various aspects of college life, etc. These should be for the use of the individual student when needed. One or several could avail themselves of the opportunity to use this room without disturbing any other part of the school.

Staff meetings to view films or for other purposes could be held in the conference room if the staff did not exceed about twenty. It could also be used by the principal for various small meetings as it would be conveniently located in relation to his office.

If any of the staff wanted to confer with the counselor concerning students, this would be the place for such meetings. In-service training sessions could be done here. This would be one of the most used rooms in the building.

Storage space with a maximum of security is necessary for this department. Such things as standarized tests, scholarship application blanks, grants-in-aid forms, individual inventory forms all need storage space so lock filing cabinets are essential.

If the library really functions as a resource material center, all occupational information and college catalogues, film strips, films, etc. should be kept there. If not, then storage space in the guidance suite must be increased to take care of all this additional material.

To get the ideal situation in this area, IBM should be consulted to work out a communication system so that all dictation would be done from the counselor's office to a central office where there would be a secretarial pool to do typing, fill requests for materials and information from the central office, write letters, use duplicator, etc., and perform any other routine task.

This service, of course, would be for the entire staff and not just for the counseling department. Each one would have a code and he alone could activate his line of communication. Tapes could be made, played back and stored for future use. No one would be able to break in on another's line so security could be maintained.

If this secretarial service is not available, then a workroom with duplicator, typewriter, cabinets for individual folders would have to be added.

Administration Suite

The principal's office should be adjacent to the guidance area; however, both offices should have a main entrance so that students could go to the guidance area without going through the principal's area. Both the principal's office and the guidance center need to be in an area of the building which receives heavy traffic--that is to say, they need to be convenient for the students, parents and others who seek this service.

The principal's office should be no less than 24' x 20' and furnished quite comfortably with desk, chairs, wall-to-wall carpeting, and all the necessary accessories which normally go with this office. The reception area needs to be larger, perhaps no less than 24' x 40', and it should be equipped with the intercom control system. Work area should be provided for one full time secretary and work areas for typists or other part-time help. Comfortable chairs should be provided for those who come to this area and a very pleasant atmosphere should be provided. The area needs to be acoustically treated and air conditioned. Outside windows would be desirable but not a necessity.

This administrative area needs to be near the main entrance to the building so that it will be easily accessible and traffic can flow through here without disturbing the rest of the building functions.

It should be pointed out that the principal will not need a board of education room as he will have access to the group meeting room provided for the guidance area. The superintendent's office area will need a board room and this will be described elsewhere.

HEALTH ROOM AREA

Educational Outcomes

This facility will provide the space for testing and the providing of certain public health information which will be required in the school. The services which are being provided by the health areas during the recent years have greatly expanded and it is anticipated that they will continue to expand. Thus, the area needs to be flexible, with sufficient floor space that, as changes come along in the future, we can adapt to them.

Orientation and Relationships

This facility should be in a part of the building which is away from high level noise activities, such as the gymnasium, kitchen, etc. The area should be easily accessible and conveniently located - that is to say, it should not be stuck in a dark closet in an area which will be of no use to the student population. It will not be necessary for this room to have an outside entrance nor would an outside window be of necessity. It should, of course, be acoustically treated and be air conditioned.

Furniture and Equipment

This area will consist of three rooms: the health room, a bathroom and a waiting room. The bathroom, of course, needs to be equipped with the usual lavatory and stool fixtures. The health room needs to be equipped with at least two cots, a pair of health scales, a complete first aid supply kit, and medicine cabinet. The area should have chalkboards, bulletin boards, and it should be equipped so that film could be projected in this room; a pull-down screen should be provided. As for storage - there should be no special problems in the storage of items, that is to say, ordinary shelving would provide sufficient storage for most of the items in this area. Some cabinets with doors should be provided along one wall of the health room. It should be pointed out that in certain eye tests, a distance of twenty feet is required; thus, shelving, etc., needs to be arranged accordingly.

Utilities

There are no special requirements as for utilities. There should be an ample number of electrical outlets provided on all walls of the health room and the waiting room. We do not anticipate any need for outlets other than the usual 110 volt. This area needs to be provided with an adequate ventilation system. There, of course, needs to be water and drain connections - these will be provided as the bathroom will be in this area.

Enrollment and Space Requirements

This facility being planned for 400 students, it is our belief that a complex of three rooms; the waiting room, which would be no less than an area of approximately 12' x 20'; the health room area, which would be no less than 24' x 20'; and, of course, the bathroom would be outside of this area.

SCHOOL LIBRARY MATERIALS CENTER

The school library is the materials center for the instructional program. Knowledge of organization of materials and methods of circulation and techniques of utilization are demanding that the librarian become a materials specialist. The production area, described in Mr. Caldwell's material, is a natural part of the school library materials center as proximity to library materials should make production that much more attractive.

Information retrieval, microfilm, book catalogs are a few of the trends making new demands on library design so that the provision of space and flexibility for eventual expansion is essential.

The architect must not be called on to solve discipline problems but careful design exhibiting an understanding of a library program should ensure an attractive, functional, and appealing facility which will be properly used for teenagers.

Library Activities Overview

Large group, small group, and individual instruction
Book talks
Book discussion
Informal reading
Individual, small group and class utilization as a learning laboratory
Exhibits of student work
Exhibit collection of art, realia, hobbies, etc.
Use of all types of print and non-print materials

Size of Collection

It is difficult to pinpoint specifically the quantitative aspects of the materials collection. Estimates include:

Books - 10,000 volumes
Recordings (disc and tape) - 500 - 1000
Filmstrips - 1500
Periodicals - 70 - 100 microfilm storage (plus 3 years' back issues)
Vertical file cabinets 8 - 10 (will house pamphlets, transparencies, flat picture sets, etc.)
Poster drawers, cupboards for realia, globes, and multi-media kits should be provided

The following material was developed by Marilyn Miller, Library Consultant, State Department of Public Instruction.

1. General Considerations. (e.g., types of learning activities, with implications for facilities and equipment.)

   A school library serves the same function in all schools: elementary, junior high, and senior high. The materials collections differ and the size of the furniture matches the users, but the uses, values, and contributions of the school library are the same for all boys and girls.

   In a school library the student, as an individual or as part of a group, selects books, hears stories, listens to recordings, does individualized research projects, views filmstrips and learns to use an organized collection of book and non-book materials.

For today's student a variety of materials, printed and non-printed, should be offered and circulated through the school library; such as

- Books
- Trade supplementary textbooks
- Pamphlets
- Recordings (Disc and Tape)
- Microfilms
- Talking books or books on Braille
- Programed materials
- Magazines
- Sound films
- Transparencies
- Globes
- 8 mm single concept film models
- Flat maps
- Charts
- Slides
- Flat pictures
- Kinescopes
- Museum objects or realia

2. Space Needs. (e.g., number, type and approximate size of rooms or areas.) Indicate approximate size in terms of minimum number of square feet per student, times and maximum desirable number of pupils or area at any one time.

To properly house these materials careful planning of available space must consider these space demands:

- Reading and reference room
- Processing and work area
- Office space for librarian (s)
- Conference rooms
- Library book stack area
- Library classroom
- Periodical storage
- Textbook stack area
- A-V utilization area
- A-V materials storage area
- A-V equipment storage area
- Individual study carrels
- Individual listening equipment
- Individual viewing equipment
- Shelving with dividers for recordings
- Cabinets or drawers for filmstrips, slides, etc.
- Racks for storage maps, screens, etc.
- Shallow drawers for large posters, flat pictures, maps, etc.

Space

Reading Room

30-35 square feet per reader
45-55 seats as a minimum for enrollment up to 550 students
Seats for a minimum of 10% of the enrollment in schools with more than 551 students
No more than 80-100 seats should be located in one reading area
Large schools will need to provide additional reading areas

Work Room

Opens into main library room
200 square feet as a minimum if only printed materials are handled by library
400 square feet as a minimum when both printed and non-printed materials are handled by the library

Office

In schools of more than 500 enrollment, a separate office for the librarian
In schools with fewer than 500, office area may be combined with library

Additional Areas

Additional space will need to be planned for storage, distribution and repair of audio visual materials.

Library Classroom

Furnished with tables and chairs can double as a viewing area, or for instance, if imaginatively planned, as the magazine back issue room. In this room too, shelving should be provided. To this area will come groups for library instruction book talks, demonstrations, displays, etc. Adjoining the reading room, this room should have entrances from both the hall and the reading room.

Professional Collection

Space is recommended for the collection of professional books and magazines, resource units, curriculum guides, and other materials, as well as storage of current and back issues of magazines.

Shelving

Sufficient adjustable wall shelving (see page 11 for dimensions) to house three-fourths of the book collection is needed. Special sections will need to be provided for reference, picture books or outsized volumes, and magazines.

Listening and Viewing

As has been and will be noted, listening and viewing activities should be part of the library whether the A-V center is adjacent to the library or not. Mobile equipment makes it possible to use the conference rooms and classroom. Special equipment means these activities can go on in the reading room also. Most A-V materials should be as accessible as books.

The A-V room should be separate from the viewing area. The A-V room should be reserved for storage, distribution, and care of materials and equipment. This area can also include the materials production equipment. Exact needed space depends on the size of the enrollment, type of school, inclusiveness of the instructional materials program and the availability of a district center of audio visual materials.

For instance in schools with enrollments up to 500, one workroom storage area may serve for both printed and non-printed materials and equipment, allowing about 400 square feet. Additional space is needed for schools with enrollment above 500.

In schools of 600-1200 students

A-V equipment	300-400 square feet
A-V materials	300-400 square feet
Viewing and auditing	800-1000 square feet
Administration of A-V materials	150-200 square feet

Conference Room

Adjacent to main reading room
120 square feet as a minimum
Schools with more than 1000 students will need two or more conference rooms
Walls and ceiling should be acoustically treated to soundproof area
A table, chairs, small blackboard and shelving will adequately furnish the room
The conference room can double as a listening and viewing area

Stack Area

Determined by number of books in the regular working collection that cannot be shelved in the main reading room area, extent of the collection of back issues of periodicals and extent of A-V and supplementary materials to be quartered in this area.

Stack space is for little used materials and/or duplicate copies. It is, however, a valuable extension of the library and should be easily accessible to all. Planning will locate the stack area adjacent to the reading room. Adequate space between sections and allowances for collection expansion should be taken into consideration.

3. Location and Accessibility in relation to other departments or area within the school plant.

The school library should be located on the ground floor in a central location. Students from all instructional areas should have easy access to the library and its materials.

A central location also speeds delivery of materials and equipment to the classroom.

Location, if feasible, near an outside entrance would facilitate eventual night and summer service.

4. Traffic Circulation and Areas of Pupil Concentration within the room or area.

The following areas within the library will need special planning due to pupil concentration and traffic:

Charging desk
Card catalog
Current magazine area
Index table
Entrance
Reference section
Back issue periodicals room

5. Furniture and Equipment, built-in and movable equipment. (e.g., chalkboards, tackboards or bulletin boards, pegboards, wall clocks, bookcases, storage bins, closets, work counters, etc.)

Free standing equipment:

- Charging desk
- *Card catalog
- Book trucks
- *Legal size filing cabinets
- Librarian's desk
- Typewriter
- Dictionary and atlas stand
- Metal shelving

*Can also be built-in, but future growth should be taken into consideration.

Built-in:

- Bulletin board
- Magazine rack
- Storage cupboards
- Book drop
- Display case
- Work counters
- Storage drawers
  - Standard
  - Oversize for flat maps, large prints, and posters

Shelving

All shelving must be adjustable, made of hardwood, and not include doors
Length of shelves between uprights - three feet
Depth of shelves:
  Standard eight inches
  Picture books twelve inches (elementary)
  Magazines (slanting) sixteen inches
Thickness of shelves 13/16 inch
Base 4-6 inches
Cornice (where used) two inches
Height of shelving for:
  *Elementary school - 5-6 feet
  Junior high school - 6 feet
  Senior high school - 6-7 feet

Space in the clear between shelves 10 - 10½ inches (adjustable feature cases for variations) Double faced mobile counter height shelving is excellent as room or area dividers.

*Many elementary and junior high librarians would like shelving seven feet high. The top shelf can be provided with lids so that this becomes another storage and display area in elementary libraries. The top shelf can be used for display purposes.

Shelving capacity estimates:

Number of books per shelf-foot:
  Average size - 8
  Picture books - 20
  Reference books - 6

Full shelving capacity depends on the size of the collection, plus planned expansion. The minimum book collection should include ten books per student based on maximum anticipated building enrollment.

Tables and chairs:

Apronless 3' x 5' tables seating four students are the most flexible and functional. Round tables 4' in diameter and individual study tables will add to the appearance of the library. Allow a minimum of thirty inches per reader at a table.

Heights:	Tables:	Chairs:
Elementary	25" - 28"	14" - 17"
Junior High	27" - 30"	16" - 18"
Senior High	29" - 30"	18" - 18"

Aisle - space between tables (with chairs) - 5 feet
Aisle - space between tables and shelves - 4 feet

Audio Visual Equipment:

- 16 mm sound projectors
- Slide projectors
- Overhead projector
- Projection screens
- Tape recorders
- Radios
- Cameras
- Planned boards
- Language laboratory
- Filmstrip projectors
- Opaque projectors
- Micro-projector
- Record players
- Television sets
- Teaching machines
- Dry mount press
- Microfilm readers
- Student carrels

Charging desk should be simple and functional. Space will be needed for filing trays and shelves for returned books. Rectangular, L-shaped, or U-shaped desks are recommended for large schools. Sitting height is necessary in an elementary school. Counter or standing height is suitable for secondary school libraries.

The card catalog cabinet should be standard unit equipment purchased from firms specializing in library furniture. Sectional cases allow for expansion.

Window seats, informal furniture, exhibits, pictures, murals, plants, and art objects add dimension and attractiveness to the school library.

6. Special Utility Needs within the room or department. (e.g., toilets and lavatories, sinks, fountains, telephones, gas and electric outlets, etc.)

   Toilet (especially for time when night service will be a reality)
   Sink
   Telephone
   Sufficient and well-located outlets
   Duplex outlets in the baseboard of the shelving on each wall of the reading room, and in the classroom and A-V areas; above the work counter in the workroom; in the office areas and in the conference rooms.

7. Storage. (e.g., clothing storage; materials, supply and equipment storage; project and apparatus storage, etc.)

Coat closet for staff's wraps
Well designed and efficient storage areas for the already named equipment and apparatus
Cupboards in storage area should be enclosed

8. Physical and Psychological Environmental Needs, within the room or department. (e.g., heating, ventilating and cooling; visual, acoustic and aesthetic considerations)

   Same considerations for heating and ventilation as for other areas.

   Air conditioning should be considered for future plans which would call for summer use.

   Attractive, pleasing colors should be planned. Shelving should harmonize with the furniture. Furniture should have non-reflecting surfaces. Extensive window surface calls for draperies and/or blinds control.

   Artificial or natural lighting must meet the standards set forth in this guide. The floor covering must meet acceptable light reflectivity standards. Acoustically treated ceilings will help control sound.

9. Other Considerations. (e.g., work surfaces, floor coverings, window area, doors, surface features of walls and ceilings, wall suspension devices, etc.)

   Window and glassed areas must lend themselves to fulfilling one of the major purposes of the school library to adequately house instructional materials. Storage and shelving space must not be sacrificed for extensive glassed areas. Corner windows, skylights, glassed area above the shelves on the outside wall and glass enclosed stack area are alternatives.

   Serious consideration should be given to the fact that the library is one of the areas which can be successfully and economically carpeted. Other suitable floor coverings which are also sound reducing are vinyl tile, rubber tile, cork or linoleum.

   Light switches, electrical outlets, thermostats, etc., should not be located where they use space needed for shelving.

   The workroom counters should be carefully planned for efficient work area. The counter, 18-24" deep, is vinyl or formica topped.

AUDIO VISUAL CENTER

The Audio Visual Center is a part of the instructional materials center and this includes the library.

Educational Outcomes

The audio visual center should be an integral part of the entire educational program being carried on in the school. This center will house most of the audio visual equipment as well as provide a dark room area to take care of the photographic production. It will include a production area which will offer a place for the teachers to prepare materials; the center will provide a darkened area in which films may be previewed or a place in which tapes or records can be examined prior to their use in the classroom. The specific educational outcomes of this center would be a little difficult to specify as this center should be a part of almost every area within the school.

Space for remedial reading program, if such is provided by the school, should be close by so that a variety of materials would be readily available for use in this program. The library area which will be a part of the instructional materials center will, of course, house books and other media for reference or enrichment of the curriculum and this area will be covered in later pages.

Discernible Trends

Only recently has the importance of an audio visual center been realized by educational leaders throughout the nation. Only in recent months has a serious effort been made to develop a list of basic materials and equipment which should be included in the audio visual center. The equipment which will be suggested for this audio visual center will almost without exception meet the basic recommendations of the chief state school audio visual officers.

Activities

We envision the audio visual center as a hub of activities which will include a great number of activities. As time goes along we are sure that the number of activities as well as their scope will greatly enlarge. This will be a center for the preparation of a vast number of instructional materials as well as a storage area for much of the equipment, models and other demonstration items which will not be used except on occasions. The audio visual center should contain flexible equipment and flexible storage areas so that the center could be changed as time and needs dictate. The various activities to be carried on would be limited only by one's imagination. Certainly some of the items which will be carried on would be the production of overlays, production of bulletin board displays, previewing of films, listening to records, tapes, and certainly the storage and production of audio tapes to be used in closed circuit television. A dark room should be provided and completely equipped with the necessary materials and storage of supplies. The area should, of course, be well ventilated and be provided with water and lavatories as this will definitely be a work area and there will be need to clean materials, and of course a place to wash hands.

Graphic:
- Transparency Maker
- Paper Cutter
- Spirit Duplicator
- Typewriter, Large Type

Photographic:

- 16 mm Camera
- 8 mm Camera
- 35 mm Camera
- Polaroid Camera
- Equipped Darkroom
- Copying Stand
- Flood Lighting Equipment
- Tables & Chairs for work area
- Exposure Meter
- Flash Lighting Equipment
- Photographic Files
- Repairs and Maintenance:
  - Film Rewind & Splicer 8-16 mm
- Tape Splicer

Utilities

The audio visual center should have an ample supply of electrical outlets; these outlets should be 110 volt. The room should be equipped with three-way switches so the light could be controlled at any of the doors. The area needs to be acoustically treated, perhaps carpeted, as well as an acoustical ceiling. The area should be provided with a wash basin and the darkroom would need to be equipped with running water and a very efficient ventilation system. It would be most desirable to have the area completely air conditioned. As mentioned earlier, control of light in this area will be a problem and it would be perhaps as desirable to have this area without any windows and have it lighted artifically.

Orientation and Relationships

The audio visual center as a part of the resource area should be centrally located and accessible to all parts of the school. This center should of course be equipped with an outside entrance for the receiving of supplies and materials. Certainly as time goes by we can invision a great deal of traffic in and out of this center. There should of course be access to this area from the library. There should also be a door between this area and the main corridor to the rest of the school so that equipment and materials could be moved in and out of the center. Both the outside door as well as the door to the hallway should be slightly larger than normal to provide for the moving of equipment.

Furniture and Equipment

The following is a suggested list of equipment to be placed in the audio visual center:

- 2 - 16 mm Sound Projectors
- 1 - 8 mm Projector
- 1 - 2 x 2 Slide Projector Automatic
- 2 - Filmstrip Projectors Combination Slide
- 1 - 3½ x 4 Slide Projector Overhead -- Classroom
- 1 - 3½ x 4 Slide Projector Auditorium Type
- 6 - Overhead Projectors Classroom Type
- 1 - Overhead Projector Auditorium Type
- 1 - Opaque Projector
- 1 - TV Receiver (if programs available)
- 1 - Micro Projector
- 2 - Record Players
- 2 - Tape Recorders
- 12 - Projection Carts
- 2 - Videotape Recorders
- 3 - Radio Receivers AM-FM
- 2 - Projection Screens - Portable
- 6 - Filmstrip Viewers

Space Requirements

The space required for this area is difficult to determine. However, we believe an area about the size of an ordinary classroom would be desirable as the minimum, and of course as mentioned earlier - equipped with movable shelves, tables, etc., so that the area can be completely flexible. As this is a new field, it seems the most desirable thing to do would be to make the area as flexible as possible so that later additions and changes may be made.

ART ROOM

Area

An art room should have 4500 sq. ft., plus 100 sq. ft. for a supply room. A smaller area would not enable the students the freedom of movement so essential in creative expression. Seven to eight sections will be taught with 25 to 30 students per section. The following is a list of the proposed sections of study and some of the types of study which fall under these particular categories:

Sculpture:	Soap carving, clay modeling, plaster modeling, cement modeling, wood carving, stone carving, etc.
Art Appreciation:	Composition and design, theory and practice of design, general art, art history, etc.
Drawing and Painting:	Pencil sketching, pen and ink drawing, water-color painting, oil painting, figure drawing, etching, illustration, etc.
Architecture:	Home planning, interior decoration, community planning, architectural drawing, landscape architecture, etc.
Art of the Theater:	Stage craft, scenic design.
Industrial Art:	Arts and crafts, shop sketching, costume design, textile design, millinery design, jewelry design, art metalwork, block printing, leatherwork, ceramics, furniture design, handcraft.
Commercial Art:	Art in salesmanship, costume illustration, advertising art, poster, showcard writing, sign painting, pictorial photography, etc.

Special Needs Within the Area

For good light, tall windows set close together plus adequate electric lighting for dark days should be provided. Opaque shades or curtains should be installed at all openings that admit daylight. The room must have ample ventilation.

All doors including those on the cupboards should be constructed of plywood.

Provide ample 110 volt circuit outlets which are well grounded. Exhaust fans in the ceramics, photography, and metal crafts areas are essential. Outlets in the ceramics section should have greater voltage for kiln and other appliances. (80 amps circuit wiring needed for A10 or A12 kiln) The floor of the ceramics section should be concrete with a drain equipped with a clay trap. All sinks should have plaster and clay traps in drains. Natural gas will be needed for torches in the metal crafts section. Display cases for ceramics, wood, jewelry, etc. should be glass fronted and constructed with locks.

Color, Decorating and Acoustics

The entire art room should be acoustically treated. It should also be entirely fire resistant because of the extensive use of flammable paints, acids, and developers. Floors should be of a substance to resist stains and marks. Color of the art room should be a light yellow.

Audio Visual Facilities

In addition to the numerous display areas indicated on the floor plan, add the following visual instruction equipment: projector (overhead and slide), stereopticon lantern stand, and stereopticon screen.

Furniture and Equipment for General Art

Teacher's desk, top 32" x 50", or like those used throughout the building (dull finish).
3 straight chairs (straight, teacher's) like those used throughout the building.
4 tables (formica tops) 4' x 8'.
2 or 3, 4' x 8' tables with 4" thick formica top for use in leather work or metal work area.
1 or 2, 4' x 8' tables with formica tops for ceramics section.
30 to 35 benches for individual students with rapid-acting woodworking vise.
3 or 4 stools with round wooden tops, 4 legs, height 18½".
Spotlights for still life drawing and painting.
17" x 17" electric kiln.
Potter's wheel, manual.
4 sinks equipped with 3 combination hot-cold faucets.
Concrete wedging table with plaster top for ceramics.
Damp box - could be any lead lined container such as an old refrigerator or deep freeze, or could be built into cabinet space in ceramic area.
Portable easels, 15 or 20, (standard size).
Tote trays - 100 about 8" x 12" x 4" for individual students.

Shape of Facilities

The room should be L-shaped for discipline reasons which the floor plan clearly indicates. The room itself will be divided into general areas according to the use and the equipment necessary. These general areas consist of: ceramics and sculpture area, metal and leather crafts area, drawing-projector-teacher area, oil painting-individual storage area. (A photography room could easily be added later which could be accessible to other departments also.)

Relationship to Other Areas and Orientation

The art room should be located on the ground floor to facilitate delivery of clay, stone, etc. The hallway outside this area could be 12' or 14' wide and would be used constantly as an art gallery with correct directional lights in the ceiling to shine on the cork or pegboard display walls. NO flourescent lighting at this point. A few shelves or cases on the portion of the wall could be used to display ceramics, wood carvings, stone sculpture, etc.

The art room should be near the stage and auditorium because the art room usually is called on to make scenery, props, etc. The art room should be located on the north, northeast, or northwest of the school building for uniform natural lighting. Never on the interior court.

The outside entrance door should be of extra width, 3'6" to facilitate unloading of clay, wood, etc.

Activities Within the Department

The floor plan indicates what areas should be near each other in the department. This plan would aid in cleaning, discipline, and efficiency. There would be a possibility of evening adult education courses and probably Art Club meetings being held at night. There should be no traffic other than art students coming through the art room itself.

Future Trends

A future photography lab in the art room available to journalism, science and other students.

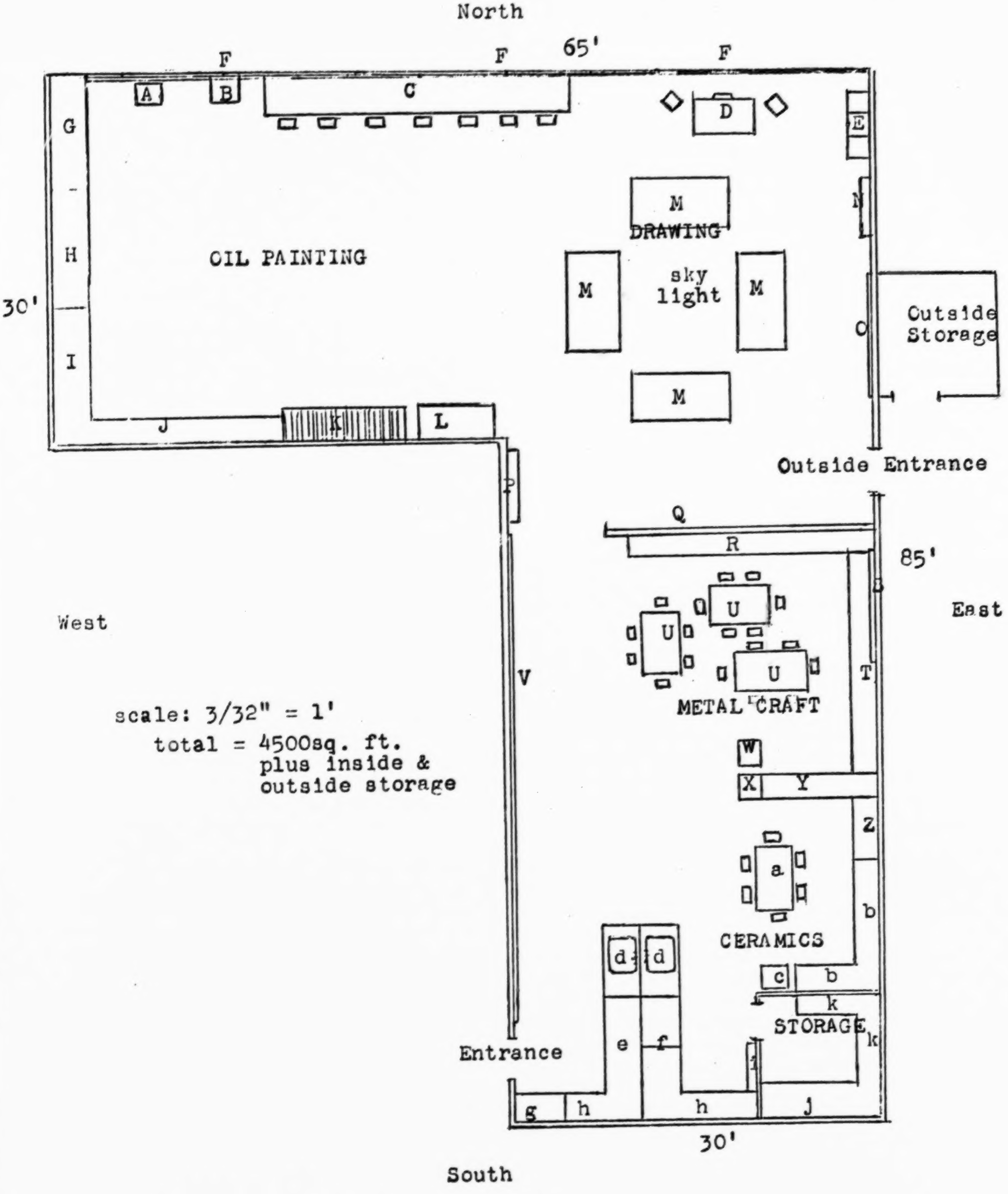
Legend for Floor Plan of Art Department

A table saw, electric, table height
B paper cutter, 18" cut
C counter, formica top, height should be so that could be standing or sitting on high stools to work at. Underneath area needs drawers no less than 6" deep and vertical storage space for 30" high work of students.
D teacher's desk and chairs (refer to equipment list for details)
E 3 file cabinets of legal size for personal storage of teacher
F tall windows set close together along entire north end of department
G individual vertical storage for oil paintings and other large work (stall form)
H 8' section of shelves 12" high each for storage of still-life material (adjustable height shelves)
I 8' section of 12' high each for storage of new large watercolor paper, etc.
J 8' high section of shelves for storage of paints and individual trays containing brushes, pens, pencils, etc. (adjustable height)
K 8' vertical storage for large work (stall form)
L sink equipped with 3 combination hot-cold faucets
M tables with formica tops, individual student benches
N 12" deep book shelf with adjustable shelves for library books
O 4' x 10' blackboard with roll type movie screen which can be pulled down over the top of the blackboard.
P 5' x 5' magazine rack with slanting shelves
Q stone divider to separate metal craft and ceramics sections from drawing and painting section (3 or 3½' high)
R counter for metal crafts section, formica top. Natural gas for torches should be installed here (foot pedal type) drawers and compartments for storage of leather and metal tools.
S 10' long vertical tool rack installed over counter area
T counter for metal crafts section, formica top. Drawers and compartments for storage of leather and metal tools. Built-in cabinet space over counter area.
U tables with 4" thick formica top (pounding surface). Individual student benches (adult size).
V 5' wide display board (cork) along almost all of wall except for magazine rack. Blackboard could be in part of this to facilitate metal crafts and ceramics sections.

W	metal polisher, electric
X	small sink, 3 combination hot-cold faucets, plaster and clay traps in drain
Y	counter top, canvas covered for working clay - damp box built in below
Z	cement wedging table with plaster top

a	table standard size, formica top - individual student benches (adult size)
b	counter top, porcelain or marble, storage below for glazes and equipment, cabinet space overhead for chemical (well ventilated)
c	17" x 17" electric kiln - A10 or A12
d	large sinks equipped with 3 combination hot-cold faucets, clay and plaster traps in all drains
e	glass front display case with adjustable shelves for display of ceramics, carvings, jewelry, etc., 8' in height
f	storage for individual trays of equipment of students, vertical storage below
g	closet for smocks, 8' high with shelf over smocks for smaller items
h	brooms and over cleaning tools
i	12" deep, 8' high shelf area with adjustable shelves
j-k	storage of valuable equipment, plus other

FLOOR PLAN FOR ART DEPARTMENT



MUSIC

In a high school the size that the proposed school will ultimately be, there should be, after full implementation of the vocal program, time provided for a boys' chorus, girls' chorus, mixed chorus, and provision made for a select group of singers. In the early stages of this program, enrollment would probably not be sufficient to allow for all of these classes; but after interest is built up among the student body and community, more classes could be included in the schedule because of its apparent flexibility. The select chorus mentioned would consist of about fifteen persons chosen for their performance ability. The purpose of the group would be strictly the performing phase of music education and would provide an excellent example of the music department functions as well as promotion of community interest in the school itself. Of course, the purpose of vocal training should not be based entirely on performance ability; therefore, many educational activities are left to be carried on by the other classes of vocal music.

A music room needs audio visual equipment, chalkboards and bulletin boards. The room must be treated acoustically to the utmost to ensure that the necessary noise of a vocal rehearsal will not be disruptive to other areas of school work. Also all rooms within the music department should be sound proofed to ensure privacy during simultaneous use. This would mean that special consideration on heating and air conditioning must be made to ensure that sound would not be carried through the set-up into other parts of the building. Noise should be cut down within the room itself, also. Reverberation is a hard thing to work against in any musical practice. The use of zonalite ceilings is suggested for all music rooms to aid in sound control. Ozite carpeting could be made of some use in a vocal area. The risers in the room should be either permanent concrete risers covered with the Ozite material; or if this is not feasible, good hardwood risers are completely satisfactory if they are installed permanently. Use of the Ozite carpeting for all music rooms is suggested.

The vocal music room must be close to a stage entrance into the auditorium, since performance is an important factor in any vocal art. An operetta or broadway style production is an educational "must" for the vocal department. Many things can be gained by students who have the chance to do this type of program. There has been much controversy over doing broadway shows in high school, but in schools in which the productions are done, the vocal department is always strong. Therefore, the art, drama and instrumental music as well as vocal music departments need to be in close proximity to the stage, since students from all of these departments would be concerned with a musical production.

Traffic problems in the music department usually involve the movement of a great number of students since many music classes are large. Therefore, spacious hallways should be provided for entrance into the music area.

Library space for a vocal music teacher is important. It is necessary for the ease of instruction to provide a handy and orderly filing area so that music can be stored and found easily. Steel filing cabinets of legal size should be provided. The four-drawer style would be excellent. Eight to ten file cabinets should be provided to ensure room for all the music accumulated by all schools that are coming into the unified district. A music sorting rack should be provided in the library space, usually along one wall or around a corner. The design of this rack is not important, but I suggest a 5' width with slanting shelves. Several shelves would be necessary.

Folding metal chairs are necessary for the vocal room. Adult size chairs are necessary for high school students. Floor protection should be provided by metal or rubber casters on the legs of any chair used in the vocal room. Approximately 70 chairs should be provided. Other equipment for the large rehearsal room would include a set of portable choir risers for use on the stage or for meetings away from school. High quality pianos will be necessary for all rooms. A rack should be provided close to the entrance to the rehearsal room for music folders. This would aid in the distribution of music each class period. This rack should be a series of 70 compartments, 14" x 2" x 15". Plates by each compartment with numbers would offer a means of identification for each folder.

Storage space for robes should be provided in the large vocal room. This storage space should be at least 36" in depth and at least 80" in height. The length would be determined by space available, but ample space should be provided. Some closet space should also be left for storage of miscellaneous articles such as lighting equipment, risers, old music, etc.

Music rooms are used night and day and, since it is current trend to create windowless areas for music, it is highly important to have adequate lighting. The activities of the vocal room require lighting above the level of ordinary classrooms. Flourescent lighting is the most practical and the best possible source of lighting for the area. The lighting should be recessed into the ceiling.

A controlled source of air must be provided for music rooms for healthful and comfortable conditions. Heating and air conditioning is a problem that should be solved by persons adept in this field but it is an important problem in music rooms. Singers naturally make use of the air to perform so fresh air is important. It takes physical exertion to perform; therefore, a room must be constructed with controls for keeping an even temperature during strenuous rehearsals. A drinking fountain should be close to the music areas because students are often thirsty after rehearsing.

The music office needs a desk, swivel chair, bookcase, shelves, coat rack, typewriter, telephone, chairs for visitors, and file cabinets. Accessibility to the music library is suggested for the office. In fact, the two above mentioned areas could easily be incorporated into one room.

Audio visual equipment is imperative. Because of the nature of the study, recording and playback equipment is required. A permanent installation of this equipment in the room would be excellent. Provision should be made, in addition, for portable equipment to be used in this department since most concerts would not take place in the vocal room. The equipment would require installing microphones at ceiling level in the room. Electro Voice 664, low impedence mikes are suggested for this room. Girard record playing equipment and TelefunKen tape equipment are the brand names of the permanent equipment that should be installed. The greatest care of the equipment would be ensured in permanent placing of these necessary items.

The floor space provided for vocal music should be about 1600 sq.ft., with permanent risers built-in. These risers should have an 8" rise for each level and should be at least 4' wide. Four levels should be provided besides the entrance level. Storage space for robes and equipment should be along the ends or the back of the room. The folder rack should be just inside the entrance from the hallway. An outside entrance would be necessary for safety reasons because large groups of students would be in the room at all times.

Music Room Sizes

Choral Room	1600 sq.ft.
Office space for two instruments	400 sq.ft.
Library and robe storage room	400 sq.ft.
Recording room	200 sq.ft.
Practice rooms (three)	150 sq.ft.

Choral room should be accessible to:

Theory room	600 sq.ft.
Ensemble room	400 sq.ft.
Band and orchestra room	2400 sq.ft.

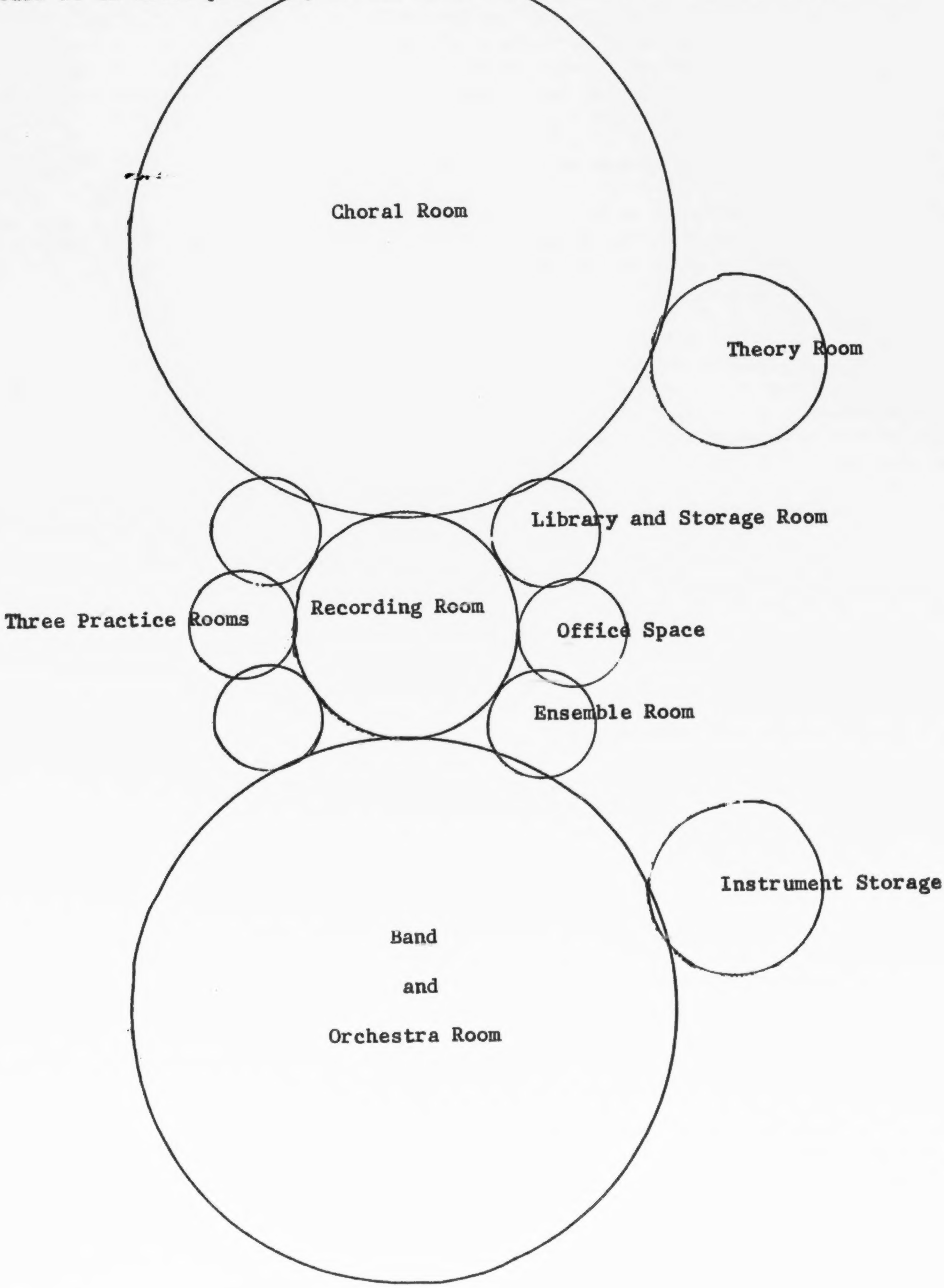
Equipment List

Pianos	Story and Clark, or Wurlitzer school model . . 5
Card file	No. 2062, four drawer
Folding chairs	No. 874, seventy
File Cabinet	1450, six to eight
Music stand	Hamilton K B 300 Conductors stand
Desk	No. F.D. 6030, 60" x 30"
Extra chair	No. 27LA
Chalkboard	3' x 5', green (sliding panel behind bulletin board)
Bulletin board	3' x 5', cork
Choir risers	Wenger, No. 20A33, 13½" steps, 3 sections
Mirrors	four, 4' x 6'

*NOTE: For office equipment numbers refer to School Specialty Catalog.

SPACE RELATIONSHIPS

A direct entrance to the music area from the outside is essential. This will provide greater utilization of this area after regular school hours. This area should be in close proximity to the little theater and to the art department.



MUSIC - INSTRUMENTAL

The music staff will be busy at all times with students utilizing the practice rooms, ensemble room, and music education room. There will be brass woodwinds and vocal groups, depending on their class schedule, working during school hours and after in most of the music rooms. There will be special record listening times set up in music education room, also music reading library in music education room.

All music activities will be planned and practiced in music rooms.

The music rooms should be next to the auditorium and stage on the other side of the building from the gym. It is believed to be better if the complete Fine Arts section be next to the auditorium and stage for programs. Traffic should flow smoothly.

We plan on the Music Department in three sections - instrumental, vocal, and music theory and history. There should be a bandroom, choral room, theory and history room, one large office or two smaller ones, library room, four small practice rooms, one large practice room, and an instrument storage room - also storage for approximately 80 choir robes and approximately 100-115 band uniforms. There should be two restrooms in music wing or very close. The bandroom will be used for band rehearsals, sectional practices, large ensembles, audio visual room, and in the future we hope an orchestra room.

The choral room report has the size and dimensions of all the rooms in the Music Department.

Music classroom will be for music theory and history I and music theory and history II, music appreciation, audio visual room, and an extra rehearsal and ensemble room. The instrument storage room should have built-in cabinets to house 120 instruments, two full length mirrors, and the cabinets should be like compartments for instruments.

The music office or offices will be used for private lessons, music guidance work, auditions, instrument repair and composition and arranging of music. The music library is for storage of instrumental and choral music. Each practice room will be used for individual solo practice and lesson practice. Ensemble room for small group practices and small section practice.

As we stated before the music wing should be next to the auditorium and stage for concerts, etc. There should be a loading dock or outside entrance from bandroom, and we are asking for no windows, all rooms to have flourescent lighting.

If needed, there should be an adult music appreciation evening class, also summer band with adults.

The Music Department should be set to be in use every hour as well as after school and evening rehearsals. We feel that the department is as compact as possible yet allows enough space for a successful program.

We would like to make sure that all conduits for wiring are three times larger than standard to accommodate wiring for future electrical equipment. We also hope to use bandroom for orchestra at a later date.

All the music department should have Zonolite on ceiling and Ozite carpeting. Thermopane glass in office and all practice rooms and should be completely central air conditioned and heated in every room. Every room should be completely soundproof from the next room.

In the bandroom, one stationery 4' x 8' greenboard and one stationary 4' x 8' bulletin board. One drinking fountain (cooled), four risers, as specified by diagram - permanent 96" x 96" movie screen, one Stroba Conn Tuner built-in by the office, one spinet piano with lock on double wheels, one 4' square conductors podium (movable), wall clock. Three low impedence mikes hung from ceiling at specified positions (Electrovoice #664 mikes). In the music education room, one spinet piano with lock, on double wheel rollers, one teachers desk (#30 3/4 A) (SSS) one chair (20LA), 25 (P 1328) music folding chairs with rubber tips, 3 multi-carrels, permanent record cabinets to hold 500 records, permanent stero speakers in every corner of room (also in bandroom), permanent cabinet to hold record player and tape recorder, movie screen 52" x 52", Boston KS pencil sharpener, wall clock, book rack for hard cover books, stand and case for film strip, magazine rack (#2005), stapler #27, small metal cabinet 2-door with lock #1201, built-in two-way intercom unit to music office.

All numbers from School Specialty Supply except mikes.

In the storage room we have mentioned wash basin, cabinets, and uniform storage.

For the ensemble room, one spinet piano on double wheels with lock. Built-in 2-way intercom unit to music office, built in rack for strobo-tuner, one mike hung from ceiling (Electrovoice #664).

In the office, one #325 steel card cabinet, one FD 6030 desk, one #28TA chair, one #27 LA chair, 3 #1002 music files, one #4 Ingento utility cutter, one instrument repair kit, intercom unit from ensemble room, music ed room and practice rooms lead into office, one table approximately 36" x 40" for instrument repair, built-in cabinet for all recording equipment. Photostat machine, book racks, Boston KS pencil sharpener, wastebasket, one Girard tape recorder, one Kodak AV 900 slide projector, one Bell & Howell film strip projector, Bell & Howell film projector, manual load 16 millimeter with stop button, one overhead projector and there should be many electrical outlets in all rooms in music department.

There should be at least 80 KBIB Hamilton music stands and for bandroom one KB 300 director's stand, 135 #875 Durham all steel folding chairs with rubber tips.

In the practice room, one mike hung from ceiling (Electrovoice #664), at least two of the four practice rooms should have spinet pianos with lock Strobo tuner in each room.

The music education room should have blackboards on at least three walls, with permanent music lines painted on.

The sound system for office to all rooms Ampex AV 770.

There should be a TV setup for bandroom and music education rooms. All music department rooms very much need acoustical treatment.

The bandroom should house up to 125 students and the music education should house 25 students. The three record players for music education room to have ear-phones.

Doors all standard except from hall to bandroom, these should be double doors.

All rooms should be painted cool pastel colors.

If possible, a drinking fountain in office.

The instrumental side of the library room should be provided with 8 #1002 music files.

BUSINESS EDUCATION DEPARTMENT

The major outcomes with which business education is most vitally concerned can be identified as follows:

1. Preparation for Work. A major task of education for business always has been preparation for work.
2. Problem Solving and Logical Thinking. Business education can assume a major role in achieving this outcome at the secondary level and beyond.
3. Personal Development. Since education must be concerned with helping young people develop to the fullest extent physically, emotionally, socially, and economically, business education must assume a responsibility for achieving the outcomes in this area.
4. Citizenship Education. Education for citizenship, a continuing responsibility of education at all levels, requires the attention and concern of business education just as much as it requires the attention of other subject disciplines.
5. Basic Skills. The development and refinement of basic fundamental processes are responsibilities of education at all levels. Business education must assume its rightful share especially in the refinement of partially developed processes. Every business teacher should feel obligated to help students acquire higher degrees of skill in reading, writing, computing, spelling, and speaking.
6. Appreciation of our American Heritage. Young people need to learn to appreciate the political, economic and cultural heritage that is responsible for the society in which we live. An appreciation of this heritage is essential for the development of a desire to perpetuate the heritage that is ours. Business education will be concerned about the development of an appreciation for our economic heritage.

In general, business education is concerned with two major parts of the education of youth: One, the knowledge, attitudes and nonvocational skills needed by all persons to be effective in their personal economics and in their understanding of our economic system. Two, the vocational knowledge and skills needed for initial employment and for advancement in a business career.

The business department of this building was designed to make it possible to offer a curriculum to fulfill the proposed outcomes.

Discernible Trends

There is a trend for schools to offer a sequence of courses leading to a major in business education. Since the students in most schools have about six elective units, consideration should be given to the development of a number of business programs leading to occupational competency in business. These programs could consist of four to six units in the business field.

Consideration should be given to the development of a number of new major programs in order to meet the varying needs and interests of a rather wide range of students enrolled in our schools. The following programs are among those that might be considered:

1. Accelerated programs in various business major programs for able students.

2. Longer less extensive programs for slow learners.

3. A program in the introduction to management training stressing general business, business organization, merchandising and bookkeeping for male students.

4. A program combining foreign languages, shorthand and typewriting for female students interested in a correspondent's career, possibly in a foreign country.

5. Programs combining various business curriculums with academic and other programs.

A common core of business subjects should be required of students majoring in various business programs. This core program should cover the duties that are common to most business jobs, thus providing preparation for a wide occupational base.

The general business and economics courses should be required of all students majoring in business and offered on the widest possible scale to all students in the school. Suitable aims and course content should be developed for those courses leading to an understanding and appreciation of the free enterprise economic system.

Instruction in personal typewriting should be made available in all schools. The course should be shorter than the vocational typewriting course. This course can be offered profitably in the junior high school.

Curriculum makers should stress the vocational values of such general education courses as English and mathematics.

All business courses offered without worthwhile occupational or general education aims should be discontinued.

In view of the growing importance of automation in data processing, consideration should be given to including an orientation unit in one of the existing courses.

Activities

It is recommended that at least four rooms be in the business department and that the fifth room would be needed if the enrollment was increased. The name of each room and the activities performed in each room are the following:

Typewriting classroom - teach beginning typewriting. This room would be used at least four periods of the day and possibly more for beginning typing.

Shorthand and Office Practice classroom - teach Shorthand and Office Practice. This room would be used two periods for beginning Shorthand and possibly for two periods for Office Practice - if Clerical Office Practice and Secretarial Office Practice.

Bookkeeping and General classroom - teach Bookkeeping, Distributing and Marketing, and any general business courses. This room would be planned to meet the needs for Distributive Education if a program were started. This room would be used two periods to teach Bookkeeping, one period each to teach Introduction to Business, Economics and Business Law.

All rooms would be available for adult education in the evening or during the summer.

Orientation and Relationships

The business department and the administrative area would profit by being located near each other. This would be convenient for the office practice girls to have contact with the office. If the administrative office would like to use any of the machines of the business department, they would be available and vice versa.

This department should be near an outside entrance to facilitate the delivery of machines.

This department needs to be near the journalism department so the students in journalism may use the general typing room, and that the general typing room is adjacent to the typing room. The reasons for the two typing rooms to be adjacent is that if the typing room needs to be enlarged, the folding partition between the two rooms may be opened. Also when machines need to be repaired, a machine may be used from the other room.

Every room needs a door leading from the hall. The bookkeeping room and the secretarial office practice room should be adjacent. There should be a door joining the two rooms together from the inside. The reason for this is so the bookkeeping students would be able to bring the adding machines from the office practice room.

The teacher's office should be centrally located to the business area. Three sides of the office should be surrounded by glass and covered with drapes.

The furniture and equipment will be described for each classroom.

Typewriting Classroom

Furniture

There should be 30 typing stations and chairs. Desk height should be adjustable from 27" to 30". Table tops need to be 18" x 34". Aisle space needs to be 36".

Equipment

Overhead projector, video tape recorder, skillbuilder, and closed-circuit television. The skillbuilder is used to pace instruction that is projected by filmstrips on a screen to increase reading speed and typing speed. This machine could also be used in the shorthand room. Light weight video tape recorders will permit instant recording of the video and audio activities within a classroom, with immediate playback after rewind. Thus, business machine skills of all kinds need only be demonstrated "live" just once and repeated via the video tape machine as often as required. The same video tape recorder, a television camera and microphone can be taken on field trips to record items of interest for replay over the coaxial system anytime in the future. The entire television unit is composed of three basic elements: camera and lens, camera stand and television receiver. The unit is portable and simple to operate. In the teaching of typewriting, the camera can be focused on portions of the typewriter with monitors placed around the room allowing each student an unobstructed view. During the introductory portion of the course, individual parts of the machine could easily be identified. It becomes possible to increase the number of students without undue hardship on the part of the instructor. This camera could be used for teaching all business machines and writing of shorthand. This unit can often serve the purpose of both an overhead and opaque projector.

Need a screen for the different projectors. A screen would not be necessary if the walls were made to project on.

Will need a teacher's desk and a demonstration stand for a typewriter.

A storage cabinet across the back of the room. There needs to be a wash basin at one end of the cabient. The storage cabinet should be low enough for a counter work space across the complete storage. The cabinet would be used to store typing drill books, timed writing books, and textbooks. This cabinet would also be used to store typewriter ribbons, cleaning supplies for the machines, paper, paper cutter, etc.

There will be a typewriter for every typing station. It has not been decided whether there would be manual or electric typewriters. Each desk will be equipped with a listening station. There will be both elite and pica type.

Chalkboards, Bulletin Boards and Special Aids

Chalkboard needs to be only on the front of the room. Two bulletin boards - one on the side of the room and the other at the back of the room. Typewriting charts at the front of the room.

Utilities, Visual, Thermal, and Acoustical

The lighting should be 120 foot-candle light at desk top. There needs to be outlets on every side of the room. A wash basin will be needed. The room should be air conditioned so summer programs may be offered. If there are no windows, there needs to be some exhaust system to circulate the air. The walls and ceiling need acoustical covering. Special wiring for audio-visual aids will be needed.

Shorthand and Secretarial Practice Classroom

Furniture

Twenty working stations will be in this room. Each working station will have a secretarial desk and secretarial posture chair. This room needs to be large. There will need to be room in this room for folding tables to be placed when needed in laying out different projects. A teacher's desk will need to be in this room. Two folding tables that could be set up when needed. Two, 3-drawer filing cabinets. One full length mirror on the wall. A magazine rack and shelves on the wall for classroom library.

Equipment

This room will need an electronic lab. Reflexion wireless listening facilities provides an extremely simple and practical facility for students to listen to pre-recorded materials at typewriting or transcription work stations without the need for connecting cables or headset plug-in to a jack-box. An audio loop induction amplifier is connected to the local wall power-socket. The output terminals of this amplifier unit are connected to the ends of a wire or self-adhering aluminum tape loop that borders the selected listening area and which is easily installed. The headsets weigh only 2½ ounces and operate without wires or batteries. Therefore, the student has complete freedom of movement within the "looped" area. This would make your room more flexible. A tape recorder, phonograph, or other audio source may be connected to the amplifier to provide programming. This should be fixed so that there will be several multiple channels.

An electric typewriter will be at each desk. Some of the typewriters should have a long carriage. There will need to be at least ten adding machines, one machine should be a full-bank adding machine, two printing calculators, two rotary calculators, ten transcribing machines, one dictating machine, mimeograph, spirit duplicator, posting machine, tape recorder, overhead projector, opaque projector, and screen.

A large clock on the wall that is used for timing students would be very helpful. It can be started and stopped with a lever or switch. It is just a big stop watch.

Chalkboard, Bulletin Board, and Special Aids

Chalkboards be on three sides of the room and have two bulletin boards.

Utilities, Visual, Therma, and Acoustical

Need 120 foot-candle light at desk top. There will need to be a wash basin. The room should be air conditioned and have an exhaust to circulate the air. The wall should have acoustical covering. This room will need floor wiring down the aisles, many outlets along the counter and the wall.

Bookkeeping and Distributive Education Classroom

Furniture

There should be twenty-five bookkeeping tables and chairs in this room. The tables should have 20" x 40" work space. A teacher's desk with a built-in overhead projector and a transparency maker. The storage cabinet should be away from the wall so stools could be used around it. Need ten stools for this room. There should be a magazine rack and shelves in the wall for classroom library.

Equipment

The bookkeeping classes could use five adding machines, ten-key. There needs to be storage cabinets with shelves to store the machines. Also, there will need to be storage to store advertising equipment for Distributive Education. This will need to be built to store poster equipment and sales equipment (cash register, etc.). This room should have at least 800 square feet of floor space.

Chalkboards, Bulletin Boards and Special Aids

There should be chalkboards on three sides of the room, two bulletin boards and bookkeeping charts at the front of the room. This room should have a display window for distributive students and a counter to make displays on and a place to use a cash register on when checking out items.

Utilities, Visual, Thermal and Acoustical

This room will need many outlets for the adding machines, overhead projector, etc. This room could use a wash basin.

General Typewriting Room

Furniture

Typewriting desk and chairs, teacher's desk and any other equipment needed by the journalism department needs to be in this room. Need work tables to lay materials out on.

Equipment

This room will need a typewriter for each desk. Should have all manual typewriters.

Chalkboards, Bulletin Boards and Special Aids

One chalkboard, one bulletin board and check with journalism department to see what else is needed.

Utilities, Visual, Thermal and Acoustical

A wash basin is needed, and the walls need acoustical covering.

General Classroom

This room should be equipped for a standard classroom. Nothing special is needed in this room.

The Office and Workroom

The office should have one side of the room covered with shelves for the teachers' own personal library. The office should have carpet on the floor, drapes on the windows, acoustical covering and air conditioning. There will need to be a four-drawer file cabinet for each teacher in this office. Electrical outlets for electric typewriters and adding machines.

The workroom will have a spirit duplicator, storage for duplicating paper, masters, grading supplies, tapes, bulletin board supplies (drawer for letters, shelf for construction paper, etc.), films and filmstrips, and files to keep student records.

This department has been designed to meet the following proposed curriculum: Typewriting, Shorthand I, Bookkeeping I, Introduction to Business, Business Law, Economics, Distributing and Marketing and Office Practice.

What lies ahead in business education? There will be constant change in the business world and the business teacher needs to keep an open mind and keep alert on what is actually taking place in the office. The impact of automation in the office will change the skills and equipment used in the office. Data processing, technical skills, and new equipment of all sorts will offer a challenge and opportunity.

LANGUAGE ARTS -- ENGLISH

Educational Outcomes

The language arts program in any school is a fundamental one because a mastery of English (speaking, reading, and composition) is a major factor not only in achieving academic success in almost all other areas of the curriculum but also in determining an individual's effectiveness in his citizenship, in his career, and in his continued intellectual growth following completion of his formal education. The primary goal, therefore, of the Language Arts Department is communication, i.e., speaking, reading, listening, and writing. English in the Language Arts Department concerns itself more specifically, though not exclusively, with the reading and composition areas of the language arts. Essentially, the purpose of the English Department is to produce literate, articulate individuals.

Reading skills. The English Department must recognize the ever-present need for teaching basic reading skills to a number of students who enter high school with limited or patently inadequate reading skills. The department will, furthermore, concern itself with the improvement of the reading of all students, so that they may read with ease, with understanding, and with rapidity. Skills in library use and the findings of information will also be stressed. In addition, it will concentrate on the development of mature reading tastes and appreciation of literature. Always it will seek to instill in the students the habit of reading for information and for pleasure.

Written Communications. This area will cover spelling, mechanics, sentence structure, and organization, with effective, logical written expression as its goal. Practice with most forms of composition from letters and exposition to creative writing projects will be included. Efforts to meet the needs and competencies of individual students will be made. Such efforts may entail group projects within a given class, specially tailored classes in some cases and provision for independent study.

Listening. This area, sometimes overlooked, will include instruction in note taking, critical listening and thinking, and aural appreciation of the language and its literature. Records and tape recorders lend interest and effectiveness to this phase of the English programs.

Discernible Trends

A continued but accelerating trend in secondary English is the meeting of individual student needs and the recognition of the wide range of student competency in the various areas of English and the language arts program as a whole. This may evidence itself in special reading programs and/or classes for students with reading problems or in accelerated classes, special seminar - type groups, and independent study for the more able and/or advanced students.

Another trend in the teaching of English is the fuller utilization of special competencies of the instructors. This could conceivably result in team teaching. However these goals are accomplished, there will be a distinct need for planning with emphasis on the overall flexibility of the physical plant and the scheduling and organization of classes.

As in other areas, the trend toward greater use of audio visual material is very evident. Basic equipment of this nature should be readily available (i.e., property of the department) for use in the classroom. Frequently teachers do not make use of these materials because of the time wasted and confusion in taking students to another area for viewing or listening. By having these materials readily available in the department, they would be more widely used and could become a more integral part of the course of study.

Another trend observable for several years now is the scheduling of fifty-minute classes rather than forty-minute sections. This allows for a period of supervised study under the classroom teacher. This kind of scheduling, of course, is an important consideration in planning the number of classrooms needed for a given area.

Activities

The classroom must provide adequate area for numerous and varied class activities. The methods of instruction in language arts will vary, with the teachers using both lecture and small group techniques and individual consultation. The students will be seated at individual work stations--reading, writing, observing, taking notes, and participating in class discussions. At other times, students will be arranged in small groups in order to engage in planning and construction activities. At these times, the teacher will be circulating among the small groups, consulting with each group. Different sized groups may be working simultaneously -- the teacher working with a large group, while small groups meet and discuss and students work individually. The pupils may work as (1) a large group, listening to lectures, watching the teacher demonstrate various skills with the aid of audio visual equipment, and taking notes; (2) small groups, planning and working on special projects with teacher consultation; (3) individuals, working on daily assignments, on personal projects, and conferring with the teacher on special problems.

The use of the library by the students, both individually and as a group, will be frequent, as the classes will be working on research papers, special projects, reading projects, and themes.

The departmental central office area will provide a quiet and private area where teachers may prepare lesson plans, research, and study for classroom lectures and demonstrations; consult with other department teachers on the use of the facilities, grade papers, total scores, complete records, and hold private conferences with students, parents, and other faculty members.

The departmental teachers' workroom will furnish an area for typing tests and handout materials, for mimeographing these materials, for pretesting audio visual teaching aids, and for storing department materials.

Orientation and Relationships

It is essential that the language arts rooms be located near the library and that the library be easily accessible to the language arts classes since the library materials will be used extensively by these classes. The general-purpose rooms should be so located and designed that the noise from physical activity areas, music and shop areas, and hall traffic does not prove distracting. Access to the language laboratory should be particularly convenient so that the equipment can serve the needs of the total language arts program.

In each general-purpose room, the teacher must be able to move about the room to any work station, and each pupil must be able to move from his station to any other part of the room. It must be possible for the work stations to be arranged and regrouped for different kinds of activities. Moreover, the general-purpose rooms should be so designed that they can be converted into larger areas for large group instruction. Collapsible walls would prove convenient.

All the general-purpose rooms should have free entry from corridors for the delivery of materials and easy accessibility for the students.

The teachers' central office and workroom should be in the immediate area of the general purpose classrooms, but should be so located that they are not in the general area of student lockers, restrooms, or heavily-used corridors.

Furniture and Equipment

Furniture. Each general purpose classroom should include the following furniture: twenty student desk-chairs, teacher's desk and chair, four-drawer file cabinet, one large work table, and a lectern.

In addition, the room should have cupboards and bookcases along one wall. The cupboards should be large enough for storing necessary classroom equipment and supplies. The room should have two walls of interchangeable green chalkboards, tackboards, and bulletin boards.

Equipment. Each general purpose classroom should include the following equipment: map railings for literary maps and grammar charts, mounted projection screen, ample electrical outlets for use of audio visual equipment, antenna outlet and provision for a television set, overhead projector, unabridged dictionary, twenty-five collegiate dictionaries, thesaurus, book of quotations, ten chalkboard erasers and an ample supply of chalk, portable bookcart to transport books and other equipment from the central English office or the library, and a display case which may be seen from the corridor.

In addition, each classroom should have available, as portable equipment from the central office, the following: tape recorder and tape, film strip projector, movie projector, television set, speed-reading equipment three-speed phonograph with AM-FM radio, and literary recordings.

The lighting should be adequate for normal reading and writing tasks. Chalkboards should be free from glare. Provision should be made for darkening the room for use of audio visual material.

Central English office. The central office should have pedestal desks and chairs - two teachers per desk.

Special equipment kept in the central office for use by all of the English Department should be as follows: two typewriters, an adding machine, duplicating machine and supplies, magazine rack for professional journals, extension telephone, lavatory, and storage space for the portable equipment for general classroom use. A teachers' coat closet could be located here.

A Xerox machine would be a most useful addition to the school. It could be kept in the central English office.

Enrollment and Space Requirements

For a school of 400 students, five classrooms for English would be desirable. At an optimum average of twenty students per class (a 100 student load per teacher is considered a maximum for English classes), four teachers could handle four hundred students each day. A minimum (average) of three hundred students would be enrolled in the required courses of English I, English II, and English III, and the number including the elective English IV would probably approach or exceed 350. (Two journalism rooms in addition are recommended and would be included in the language arts complex. These rooms are discussed under a separate heading as are the speech facilities.)

Each classroom should be spacious enough to accommodate thirty students even though the class size is expected to be held considerable below this figure. Using twenty-five square feet per student as a guide, each room should not be less than 750 square feet in area. The optimum size for thirty students is generally considered to be 850 square feet or more. (Teachers frequently report that they can teach thirty students in a spacious room with greater ease and effectiveness than twenty-five, or even twenty students, in an overcrowded classroom.)

Provision should be made for removable partitions between several of these classrooms so that a hundred students could be accommodated in one open area should the need arise, as in lecture sections, etc. It is emphasized, however, that unless these partitions can be made adequately soundproof this feature should be sacrificed. It was the consensus that the conventional accordian-door type partition is neither adequate nor desirable.

The English Department teachers would make use of the workroom or central department office in the complex. This workroom would accommodate four or five English teachers, the journalism teacher, though probably not the speech teacher. Adequate work space and storage for use by the language arts teacher would be provided here. This would consist of a central office for the teachers, a workroom and closets. A lavatory should be included.

LANGUAGE ARTS -- JOURNALISM

Educational Outcomes

It is expected that through the department of journalism many educational outcomes would result. Through the preparation and publication of a school paper and yearbook, many learnings would take place. Journalism would, first of all, concentrate on teaching the students the principles and techniques of good journalistic writing. This area of writing differs from the formal English writing done in the regular English classes. There is more and more demand for newspaper and magazine writers. The area of job opportunity is very wide, and it is important that the curriculum offer this training to those students who are interested. The journalism classes can create an interest in and a desire for journalism. After teaching the fundamentals of news writing, this can be put into practice through the actual preparation of copy, editing of copy and publication of it in a newspaper. Through journalism a feeling of responsibility among the students for what they write must be developed. They must realize that what they publish is subject to laws of libel and that they are responsible; therefore, citizenship training is developed. Good citizenship is developed through the interviews, correct notetaking and accurate writing in which they must be certain to prevent erroneous situations. Journalism courses teach business education through the sale of advertising and subscriptions. Keeping account of the income from these sources, the expense of the publication, including photography, constitutes a very fine business experience. Journalism develops artistic abilities through the creation of ads, opportunity for cartoon drawing and the experiences in photography. Through the compilation of a yearbook much art work is needed and certain fundamentals of good design are very much a part of it. Actually, journalism classes provide a very wide variety of experiences for the student and is an excellent opportunity to develop self-reliance and responsibility. Being somewhat of a laboratory-type class, the students must be more self-disciplined. The ideal situation allows them to plan their paper, challenging them to improve and develop. Deadlines cause them to learn the importance of promptness. Printer requirements of accuracy causes them to improve in this area. The educational outcomes of journalism are so great that they certainly merit the need and worth of these classes in the curriculum.

Discernible Trends

The school newspaper is the voice of the school. Usually it goes out to the home of every student, to the school board, to other schools and to colleges. It probably advertises the school and its work more than, or as much as, any other one part of the school. It should, therefore, be the best that the school can produce. In order for this to be accomplished, a class in news writing and the fundamentals of producing a good publication should be incorporated in the language arts program at the junior level at least. This group of students then could form the group to actually take the leadership in managing and producing the publication in their senior year of high school. The teacher who teaches these courses has a tremendous task in planning the wide variety of activities and in seeing that each of the various functions is done. Extra planning time should be allowed. Cooperation of the entire staff is needed to give the news to the students. Photography is sometimes a part of the science courses and coordinated with the journalism. Students must be allowed some flexible use of time for interviews and gathering materials for their stories because the sources of news are everywhere throughout the school -- teachers, classroom, office, library, group meetings, etc. Because of the varied activities of this type of class and the need for individual help, the size of the class should be restricted to 18 at the most.

Orientation and Relationships

It is recommended that the journalism room be a part of the Language Arts Department. It should share the language arts office. It should be near to the library for research materials for story writing. It should also be near to the general typing room recommended by the Business Department. Access to extra typewriters is needed for the days on which deadlines must be met. This would occur at least three days of every other week providing the paper is a biweekly publication. Access to a darkroom for photo development should be considered. All classroom instruction for journalism -- layout of both paper and yearbook -- could be done in the general classroom. All of the facilities should be made available for adult education in evenings or summer if so desired.

Activities

The activities of this department would be the classroom instruction given in the News English course and related instruction. Actual planning and layout of the paper and yearbook would be carried on in this room also.

Furniture and Equipment

There should be at least 18 student chair-desk combinations, providing the enrollment for this class is restricted to 18. Desk height should be adjustable from 27" to 30". Two 10-foot long work tables are needed. A teacher's desk and chair, a file cabinet, either cupboard or closet space in which to store partially prepared materials, and a permanent projection screen are other items of furniture and equipment needed. Four typing tables, desk height with 18" x 34" tops and four typewriters, 3 elite and 1 pica type, should be available. A projection screen would not be needed if the walls were such that they could be used for projection. Two large paper cutters are needed as equipment for preparation of pictures for yearbook layout. A camera with both regular and telescopic lenses, and an automatic light meter are needed for photography. A developing pan and chemicals could be used in the journalism room, but the major part of photography and development should be a science project. Chalkboards need to be only on the front of the room. Two bulletin boards, both along one side of the room, one for newspaper and one for yearbook, could be approximately 30" x 40" or 30" x 80", to serve as space on which to post assignments, schedules, notices, etc.

Utilities, Visual, Thermal and Acoustical

The lighting should be 120 foot-candle light at desk top There need to be electrical outlets on every side of the room. A wash basin would be desirable. The room should be air conditioned so summer programs may be offered. If there are no windows, there needs to be an adequate exhaust system to circulate the air. Natural light and ventilation would be most desirable. The walls and ceilings need acoustical covering.

Enrollment and Space Requirements

Since journalism is largely a laboratory type subject, the enrollment of each class should be limited to 18 so that the needed individual help could be given and so that each student would have adequate space in which to work. The room should be at least 25' x 40' to give ample room for the individual desks for classroom instruction and to give room to work around the two large tables when working on layout.

This report is based on the assumption that the printing of the paper would be handled by another department of the school or outside the school.

SPEECH DEPARTMENT

Educational Outcomes

The Speech Department is rapidly becoming a most important area of education. It first and foremost prepares every student for an adult life whether or not he continues his education. The presence of speech gives the student an opportunity to view and recognize the opportunities and enjoyments of the Fine Arts area.

The creation field is also a major factor to consider. In the drama area of speech, the expanse of the student's individual creative talents is unlimited. They will be given training in designing and producing of scenery and sets, the art of make-up, the building of props, the designing and making of costumes, and the art of acting. There will be a creative field in speech open for every student.

The fact that very few of the students will seek a career in this area is not a factor at this point. It is not the job of speech to recruit, but to introduce to the student the beautiful world of entertainment. After graduating, they will be better equipped to understand and enjoy them.

Once these youthful minds have been introduced to the theatre, they should be stimulated to the point of enjoying some of the finest areas of entertainment.

Debate, although different, is as important as drama in the speech area. For those students who do not find drama enjoyable, debate may seem the best thing. This field may be used in almost any occupation a student may choose. Whether it be politics, teaching, business, law, or any of the others, debate training will always be used.

The creation of a world of discussion and controversy is one factor gained through this field. The stimulation of the mind, to think more deeply, and to question new and controversial subjects and ideas, is becoming more important in our fast-moving society. Debate will participate in this stimulation.

And finally, but not least in importance, is the field of speaking. No matter what a student's future occupation may be, he will find that good speech will further him in his quest. The appreciation of prose and poetry is received by the student.

The total gain toward a student's education is immense. He will find his creative ability, his ability to think deeply, and his ability to speak to the people around him a great asset.

Discernible Trends

For the program and area being discussed here, one speech instructor is sufficient, but the number can be advanced to two or three. Eventually, depending on the enrollment, there could be one instructor for speech, one for debate, and one for drama.

The use of all areas by the citizens could be great. A program of night and summer speech classes for adults could be initiated. In the summer, the increasingly popular summer theatre or community theatre could give the same stimulation and education offered to the student body, to the adult population. This would bring the theatre of entertainment to the rural area for all to enjoy whether as a participant or as an observer.

Activities

Speech I. Part of the year, the beginning speech student will deal with the beginning fundamentals of speech and speaking. The different types of speeches will be studied and utilized. These types include informative speeches, persuasive speeches, experience speeches, and demonstration speeches.

From this fundamental beginning, the student will advance to an introduction to drama, debate, and the oral interpretation of prose and poetry. He will study the history of drama and discover the world of playwriting, by studying such playwrights as Shakespeare and Shaw. Records will lend a large amount of activity to the class. Full length plays and poetical selections can be used. Most of the Speech I activities will take place in Room A*. Room B* will be used for films, slides, dramatics and debate.

Debate. After leaving Speech I, the student wanting to continue his speech education can choose one of two different classes. If he chooses the debate class, he will find the need for great concentration and investigation into the present political and social problems that confront us. Tournaments will be attended and held, and the preparation of these will be in Room A for round table discussion, and Room B for the actual practice debates.

Drama. The other choice open to a Speech I graduate is drama. In Room B, he will present his play to his fellow classmates. This room will save unnecessary wear on the large stage area. However, when working on school entertainment, or the many other entertainments available, he will use the ample stage area C.

Orientation and Relationships

Auditorium. The stage and auditorium areas should be situated near both the music department and the speech department since both will use it continually. Also, there should not be too great a distance between the stage and the Industrial Arts area. The auditorium should have only one side attached to the main building.

Speech Rooms. These rooms should be near the outside wall for easy access to the stage. The amount of noise and the frequent use of the stage by the speech classes necessitate this association. If possible, the speech rooms should be situated near the instructional material center, especially for the Debate and Speech I classes.

Furniture and Equipment

Classrooms - Area A. Twenty student desks are needed along the walls surrounding a 6' x 8' work and display table. A lectern and table conclude the needed furnishings for this room. Two large permanent bulletin boards should be on two of the walls and a large blackboard should be on the third wall.

The office should have a desk, two chairs, and two large file cabinets. There should be a series of shelves, cabinets, and storage closets situated from floor to ceiling along two of the walls. The compulsory tape recorder, phonograph, overhead projector, slide projector, movie projector, adding machine, and typewriter can be stored in this office. A duplicating machine could be shared with the music department.

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*Refer to diagram on page

A table, chair and closets comprise the necessary equipment and furniture for the make-up room.

Area B, or the experimental theatre area, should have 20 to 28 semi-portable chairs looking down on the small stage area. A pull-down picture screen should be situated on the wall facing the chairs. One portable spot light is needed, as well as two rows of alternated ceiling border lights connected to a light board in the make-up room.

Stage or Area C

The costume area should be equipped with suitable machines and equipment to make costumes and rows of racks or closets to store a supply of used costumes which can be re-used.

Shelves and drawers along the walls of the prop and furniture room comprises all that is needed in this area. The "flat" storage should merely be a series of upright slots in which the flats may be stored. A paint sink, shelves, and cabinets are needed for the paint storage and mixing area.

Suitable and necessary construction tools and saws should be stored in the construction area. A large number of individual make-up shelf-desks, mirrors, and lights should be placed along the walls of the dressing rooms. They should be placed along the walls of the dressing rooms so that there will be ample dressing area in the middle. The rooms should contain make-up cabinets and costume racks or closets.

A five or six unit counterweight system is needed on one side of the stage. This system would regulate the scenery in the fly area over the stage, over which a grid would be needed, as well as a system of catwalks. A most essential item, the light board, consisting of dimmers and control knobs, will be placed in a lockable wire cage. The main stage area, which is level with the ground, will have two cyclorama curtains and two sets of leg curtains. One set will be light grey for some productions, and the other set will be a black one, used for a "void."

The grand drape, between the stage and the apron, will be made of a heavy gold, red, blue, or dark green material.

For the music department, both a grand piano and an upright piano and an upright piano are needed. These would be stored at the auditorium sides in closets. The shape of the stage and apron will allow an unlimited space for plays, recitals, musicals, and dozens of other entertainments.

A series of six ceiling border lights will be suspended from the grid. A set of strip lights will be stored in the light cage.

From the apron, the seats for the audience will ascend gradually toward the lobby, as on a hillside. The auditorium will have approximately 1000 seats.

Six spot or flood lights will be attached to the ceiling over the audience and controlled by the lightboard backstage. Two small rooms in the back of the auditorium will house two manually operated spotlights.

Utilities

Classrooms. A good ventilation system should be in all rooms. Air conditioning, especially in Room B, is essential. Because of the need for darkness, and consequent lack of windows, there must be some way to circulate the air.

Electrical outlets should be sufficient enough in number and conveniently placed so that there would be no problem in using any equipment anywhere in the rooms.

Stage. Electrical outlets will be needed in the costume room for purposes of ironing and sewing, in the building area for the saws and other equipment, in the dressing rooms for the mirror lights, in the light cage for the lightboard, in the wings for any needed lighting or sound effects, in the pit for any needed musical effects, and in the spotlight rooms.

Due to the fact that there will be no windows in the house or backstage, an outstanding air conditioning system is most certainly needed for comfort and circulation. Ventilation for all areas, including the restrooms, is an essential.

An electric outlet is needed in the work area for a hot plate for the purpose of heating such things as glue.

Lavatory, sink, and drain facilities are needed in the paint area, the dressing rooms, and the restrooms.

Acoustical

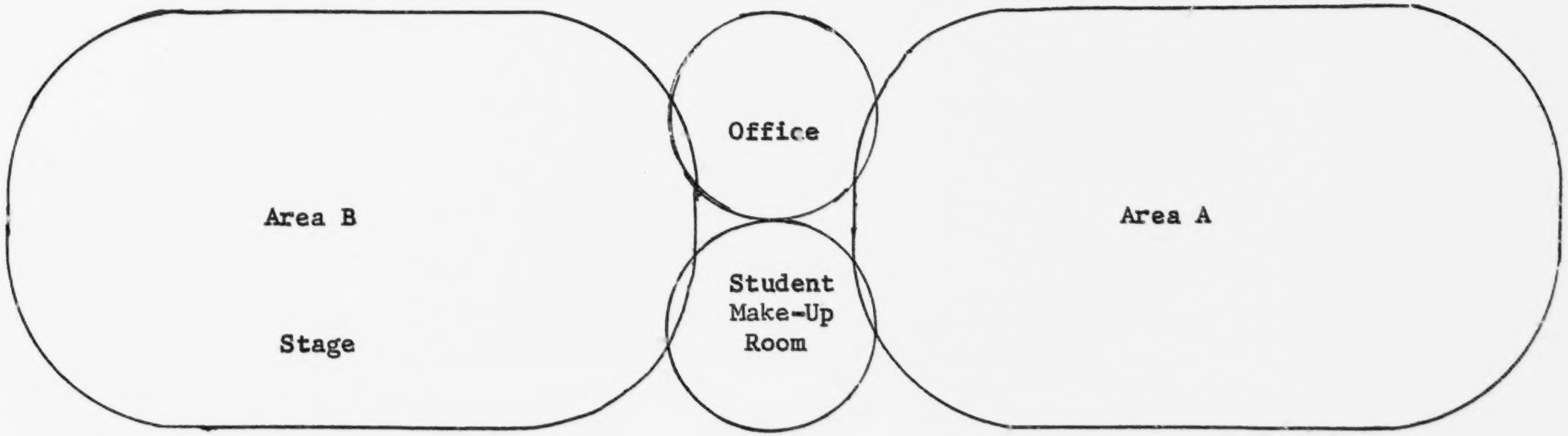
All rooms in the speech area must be acoustically tiled on all ceilings and walls. The auditorium should be built without any corners or crevices so as to limit the need for acoustical tiling except on the ceiling.

Carpeting should cover the aisles and walking areas of the auditorium and and the classrooms to help with the acoustics.

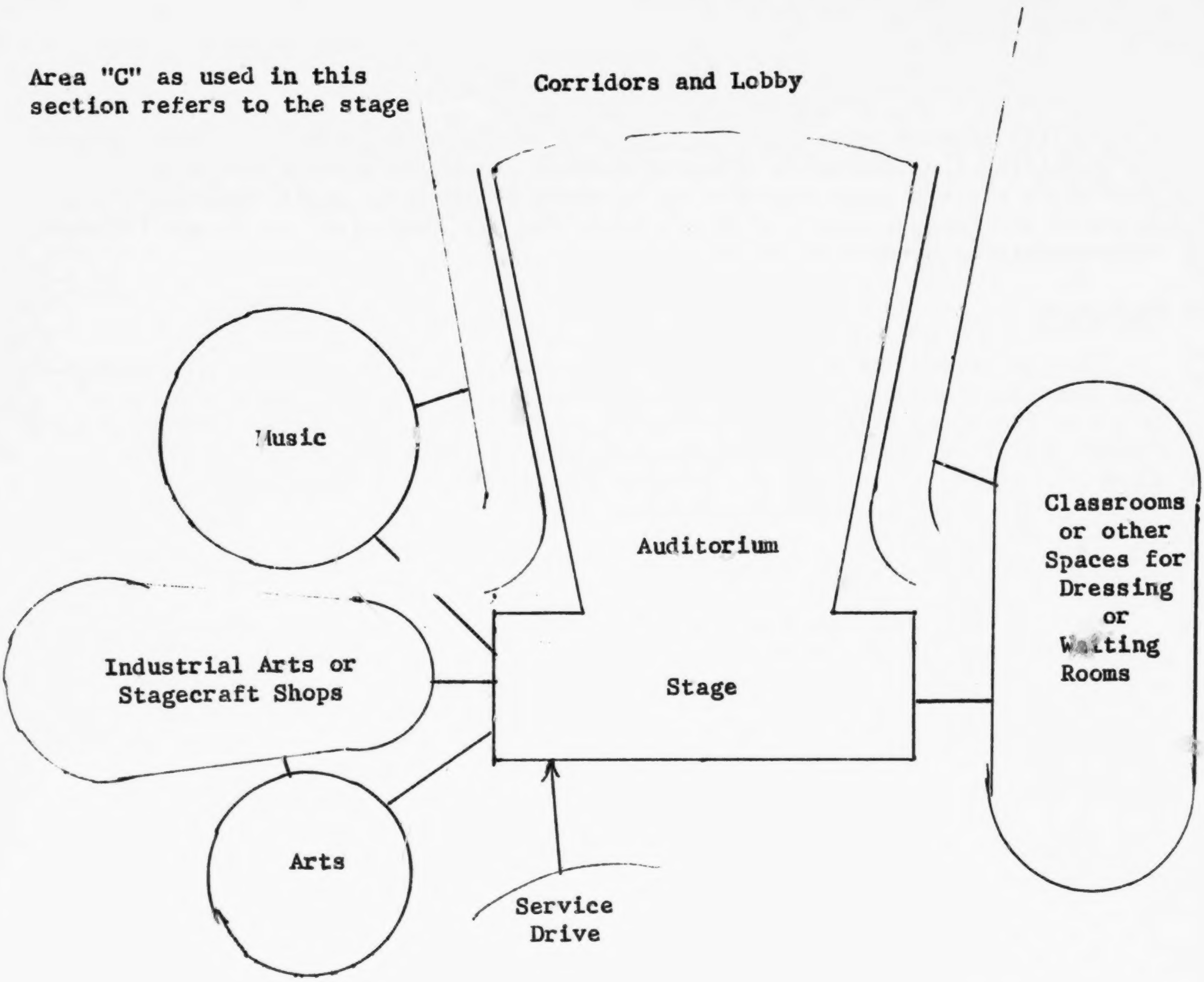
Enrollment and Space Requirements

The maximum of any speech class should be eighteen students and the minimum should be ten students.

The size of area A should be around 750 square feet. Area B should be around 1000 square feet; the make-up area around 120 square feet; and the office area 120 square feet.



1. At least 20 individual carrels in Area A on the perimeter of the room.
2. At least 2 file cabinets in office.
3. Shelves and cabinets on perimeter of office.
4. In area B, "pull down screen," at back of stage.
5. Seating space in Area B for about 32 students.
6. Wash basin in student make-up room.
7. Shelves on either side of wash basin in make-up room.
8. Work display table in center of Area A.
9. Lectern in Area A in right hand corner.


Area "C" as used in this section refers to the stage
Corridors and Lobby
Music
Auditorium
Classrooms or other Spaces for Dressing or Waiting Rooms
Industrial Arts or Stagecraft Shops
Stage
Arts
Service Drive

The auditorium should be designed for approximately 1000 people. All related auxiliary spaces should be in the proper proportion. Some of the desired spaces are as follows:

1. Lobby and proper ticket office
2. Costume and storage room
3. Properties and furniture storage room
4. Storage space for flats
5. A stage in proper proportion to the auditorium - at least 30' deep
6. Two dressing rooms, each equipped with toilet and lavatory facilities
7. A light control cage
8. Adequate artificial lighting, including spot lights
9. Toilet facilities for public
10. Proper acoustical covering for aisles

Large double doors should open from the work area to the outside for easy loading of scenery. The cyclorama, between the stage and work area, should have large sliding doors for the transportation of scenery to the stage.

FOREIGN LANGUAGE

At the present time, much more than in the past, educational institutions are utilizing linguistically oriented methods in modern foreign language instruction which place greater emphasis on teaching students to speak accurately and fluently the language which they are studying. We therefore submit the following recommendations to meet these needs:

Equipment

To facilitate these oral aspects of learning a foreign language, a twenty-four position language laboratory is planned equipped with a two-channel tape recorder connected with a Master Console, with at least three (3) program sources consisting of two tape recorders and a record player at the console. Film and filmstrip projectors should be included for permanent use for the foreign language department as part of the laboratory.

Area

The Foreign Language Department is being planned for 12 sections in order to accommodate any future demand. The current demand may not justify such elaborate planning, but based on a program of three foreign languages, namely French, Spanish and German with a four (4) year course in each of these languages with a maximum of 20 students per section, the above named sections would be a minimum requirement.

Space

In order to accommodate these sections, the minimum amount of space required is as follows:

1. Three (3) classrooms. (air conditioned and acoustically treated)
2. One air conditioned laboratory with sufficient space for future expansion, with carpeting on the floor to avoid any floor noises while the recorders are in operation. (acoustically treated)
3. One office with space available for furniture for three (3) teachers.
4. A workroom with storage space for equipment such as projectors, bulk eraser, tapes, films, filmstrips and other supplies.
5. Display area.

Desirable Shape or Arrangement

There should be three classrooms surrounding the laboratory room. The office should be located to the back of the laboratory room with a full glass view from the office to the laboratory. A raised platform for the teacher console in the laboratory should be placed on the opposite end from the office facing the laboratory booths. The storage room should be arranged in conjunction with the office. A pull-down screen located on the wall behind the platform with a green chalkboard across the full length of the wall behind the platform and facing the booths. There should be a bulletin board in the laboratory on either of the side walls. A large bulletin board and ample chalkboards should be placed in all three of the classrooms.

Relationship to other Areas

1. The classrooms for the English and speech departments could be adjacent to the foreign language classrooms.

2. No entrances from the outside are necessary.
3. Natural exposure lighting is not necessary.

Traffic

Traffic arrangements for normal classroom activities are sufficient.

MATHEMATICS

Mathematics is a living, growing and expanding science. We feel that our best students should have an early introduction to the concepts and style of thinking that modern mathematics offers. At the same time, courses should be offered for the non-college bound student.

The traditional mathematics curriculum was primarily designed for the physicist, engineer, statistician and mathematician. With the increasing overlap of the different fields of knowledge, mathematics is now being used by the biologist, psychologist, economist and many more.

With these thoughts in mind we propose the following two level program:

Year	Level I	Level II
1	Algebra I	Foundations of Mathematics
2	Geometry Algebra II (accelerated)	Intermediate Mathematics I (Principles of Algebra)
3	Algebra II Trigonometry (accelerated)	Intermediate Mathematics II (Principles of Geometry)
4	Trigonometry Analytics & Analysis (accelerated)	Consumers Mathematics

Should a student desire to change from one level to another, the following formula should be followed:

> In going from Level II to Level I, step straight across, enrolling in the same year that has been completed on Level II.
>
> In going from Level I to Level II, step two full years above that completed on Level I.

Through this type of program we feel that all students will be given an opportunity to develop an understanding of numbers and space and their relationships and uses.

To facilitate the proposed curriculum program for a school of 400 students, 15 sections of mathematics per day would be required. To accommodate this would take three classrooms and one laboratory. Each classroom would require space for 20 student desks, 100 square feet for working area at the boards, and 100 square feet for student projects. The laboratory should be located between two of the rooms. There should be an opening to both rooms and the hall. The laboratory should be 300 square feet with two demonstration tables and three individual student tables. The main tables should be equipped with a basin, water and gas.

The mathematics rooms should be located between the physical science classrooms and business machines classroom for the fullest use of equipment of all three departments.

Trends

As the mathematics curriculum is undergoing a change, there is a simultaneous change in the method of instruction. The new curriculum strives to increase the student's mathematical understanding by emphasizing the "why" of mathematics along with the "how."

One of the new methods of instruction is the use of the laboratory. The laboratory approach to the teaching of mathematics provides for independent experimentation for both individuals and groups. In the laboratory, students may discover mathematical facts through inquiry and testing of hypotheses, through the application of theory, and through reading and discussion. The equipment needed for the laboratory includes calculating devices, such as the abacus, the slide rule and the modern calculating machine; geometrical models; surveying and astronomical instruments; and charts and globes.

Programmed instruction is another new means of instruction. This type of instruction may be used by the teacher to help the slow learner. It can also be used by the exceptionally good student to study a course not being offered in the advanced math curriculum.

Team teaching and closed circuit television are being used by many more schools. Each teacher might take a particular unit or area of the material being covered and present to the class. Folding doors between the mathematics rooms could be opened so that one big lecture room could be formed.

Furniture

The mathematics department will consist of three classrooms, a laboratory and an office. It will be necessary to accommodate 20 students in each classroom. Therefore, the mathematics department will require 60 student tables; 20 of which have provisions for the log and trig tables on top; 20 which have the metric-polar tables on top; 20 with the squares and square root tables on top. These tables will be used for reading, writing, drawing, and other two-dimensional tasks so the surface should tilt and be constructed of rather hard material. Sixty student chairs should accompany the above mentioned mathematics tables. The seats of these chairs should vary in inches from the floor to give the shorter students and taller students an opportunity to sit correctly.

A reading table should be placed in the rear of the classroom. This table would make available supplementary reading materials that the students could use in connection with the problems they are working on or for leisure reading. At least six chairs should be made available for seating around this table for group projects as well as reading. For the department, a total of 3 tables and 18 chairs for this purpose would be required. A book shelf and magazine rack should be located at the rear of each classroom near the reading table.

Each classroom should have a chair for the teacher's use and a desk type table for the teacher to use as a demonstration desk and for work on small projects. This desk should have at least one drawer for miscellaneous materials.

The department will require three teachers' desks and three chairs in the department office. The desk should provide ample drawer space to store materials used in the classroom and other personal items. Two drawer locking file cabinets should be placed beside each teacher's desk for the storage of student and project records.

The chalkboards should be of the highest grade of slate. One side wall of each classroom should have chalkboards. The front of each classroom should have a chalkboard with provisions for rectangular coordinates in one inch squares and provisions for polar coordinates with one inch radius. The chalkboard should be lighted to remove the glare that is present on chalkboards that cause eye strain. Each classroom should have a bulletin board of approximately 20 square feet. This bulletin board should be placed near the door so that it may be observed by all students. At the side of the bulletin board, a 20 square foot section of pegboard should be available for displays and illustrations.

All classrooms should have an overhead projector. Therefore, it will be necessary to construct a support for a pull-down screen in a front corner of the classroom.

It is recommended that each classroom be carpeted. Carpeting will add to the quality of acoustics in the classroom and give a general atmosphere of quietness and cleanliness, all necessary for ideal learning.

At the rear of each classroom a display case with adjustable shelves 2' x 10' should be placed for displaying students' work.

The laboratory approach to the teaching of mathematics requires large working areas for independent investigation and experimentation for both individuals and groups. In order to accomplish this, it is desirable to have two work areas or cabinet tops each 10' to 12' in length and 2' wide. Under the table top, drawers should be constructed to be used for storage of students' projects until they are completed. Above the table tops, cabinets should be constructed for storage of laboratory equipment and supplies needed for investigation and experimentation. Two large work tables similar to the reading tables in each classroom are needed. These tables would be used for desk calculators, group projects, and group discussions. Eight stools should be provided for the cabinet top work areas, and at least twelve chairs should be made available for the work tables.

A sink and running water should be placed in the laboratory for use in certain experiments and cleanliness.

A four-drawer filing cabinet with a lock should be placed in the laboratory for records and supplies.

The wall space in the mathematics office should be made into storage space. This storage space should be enclosed with movable shelves. There should be a closet that extends to the ceiling for storage of surveying equipment.

Equipment

In order for students to discover mathematical facts and concepts, it is necessary to have carefully constructed models. Among the models that would be necessary is a transparent celestial globe, which would be used to demonstrate the basic relationship between the earth, the stars, the planets, and the galaxies. Other transparent mathematics models to be included are the conic section, hyperbolic section, cone, cone with circular sections, dissectible pyramid, and a trisectible prism. All these models are excellent for both demonstration and laboratory work and they are accurate enough so that measurements may be taken from them for numerical-problem purposes. Geometrical surfaces and solids will also aid in presenting many topics to the students of geometry.

Many of the basic theorems of the geometry of triangles including congruency, similarity, and nearly all other propositions may be investigated by using the extensible triangle. An adjustable triangle with movable side points would be an aid to illustrate the theorems of congruent and similar triangles as well as the functions of right triangles in trigonometry. The extensible quadrilateral is used to illustrate continuity of geometric figures when lengths of sides and angles are varied. A parallel lines device would allow the student to discover the conditions necessary for parallelism of lines. The universal circle may be used for all theorems concerning the circle arc, angles, tangent lines, secant lines, chords and intersection of lines and chords.

Models like the triomial square, pythagorean theorem, dissectible liter block, binomial cube, binomial square, similar polygons and perimeter will enable the student to discover many properties of algebraic theorems that are otherwise taken for granted.

For the laboratory, a probability experiment kit for the students who wish to explore other areas of mathematics is needed. A map making kit would be helpful in introducing the fundamentals of surveying. A mathematical shapes kit would enable the student to experiment with a variety of second and third dimensional forms.

An opaque projector would be useful in presenting materials from other sources. A film strip projector would be needed to present strip films in the mathematics classes. This would require a set of modern algebra film strips and a set of modern geometry film strips. Through the use of film strips, students can see the relationships that occur between areas.

A binary counter would be a helpful teaching device in introducing numeration systems. An abacus would also be useful at this time in presenting the different number systems. A calculating machine should be available in the mathematics office. One calculator should be available in the laboratory at all times and twenty calculators should be available for all mathematics classes.

An essential item needed in the mathematics office is the mathematics typewriter. This typewriter must have the keyboard for use in the modern algebra and modern geometry symbols.

There must be three overhead projectors - one in each mathematics classroom. These projectors must have clear plastic roll and crank attachments. To increase the benefits from the overhead projector, a set of geometry projectuals, a set of algebra projectuals, and a set of trigonometry projectuals would be needed. These projectuals would aid in clarifying many difficult theorems for students.

To use the chalkboards effectively, three wooden compasses, three demonstration protractors, three slated globes, and one elliptical chalkboard compass to draw ellipses would be required for the department. The elliptical compass would be used to illustrate the locus definition of ellipse. A logarithm and trigonometry chart that could be hung on the chalkboard when in use and placed in storage in the office when not in use would be helpful in teaching the use of tables.

Each classroom should be equipped with a demonstrator slide rule. This slide rule should be hung from the ceiling and should be rotated so that either side may be used in a demonstration.

In order to teach a unit on surveying, it would be necessary to acquire a level-transit complete with leveling rod and target. To perform problem situation, it is necessary to have a 100' tape for measuring distances between points.

For student use in the laboratory and in the classroom, thirty-six compasses should be available. There should be thirty-six straight edge (rulers) available for construction projects in class and laboratory work.

The metric chart presents a wealth of data about the metric system in a manner so simple and interesting that students acquire a sound understanding of the system in a very short time. Also there is a need for a trip balance used to demonstrate equivalent units.

SOCIAL SCIENCE

Curriculum

Objectives: to create an atmosphere conducive to learning and to give the student the opportunity to explore, discover, and use the results of his endeavor.

Plan for a possible enrollment of four hundred students in the high school. There should be four teachers in the department with classes averaging about thirty each.

Subjects should be taught in logical sequence so each will support and contribute to the total of the student's information, thus making each new subject more meaningful. Such a series would be World Geography at the ninth grade, followed by World History and American History at the tenth grade, American Government at eleventh grade level, with Comparative Governments and Current Problems rounding out the twelfth year. By the time the twelfth grade is reached, the student has a wide range of information concerning the world and its people and can now take the courses in Comparative Governments and Current Problems prepared to form judgments and draw conclusions respecting the world in which he lives.

Comparative Governments should be taught the first semester of the twelfth year followed with current problems the second semester. Many of the world's problems are caused by conflict between different theories of government. Capitalism and Communism are a case in point.

Special emphasis should be given to the problems arising in South East Asia and Africa. These areas are so full of old problems and spawning new ones so rapidly they will preoccupy the interests of the world for years to come. Such problems as overpopulation, hunger, disease, ignorance, religion, race, conflicting ideologies are a few of them. These problems will soon rest solely on the shoulders of the youngsters who are just now learning that they exist. Problem solving techniques and simulation could be used effectively here.

Young people are marrying at an earlier age. Divorce in this age group is skyrocketing, so the need for a course on the home and family is undisputable. Since Family Living involves psychology, law, religion, sociology, and economics, it would be ideal if as many of these as possible could be studied before taking the course in Family Living. If that isn't possible, psychology should be taught first to acquaint the student with himself.

The word "economics" or its derivatives are heard, seen and used as much or more than any other in our language. Whether we understand it or not, economics is something we live with in our own personal lives every day. Many decisions made by the voters at the poles on local, state, and national levels are economic in character. This can start with the decision about how to vote on a local bond issue for a new school and go on to attitudes toward foreign aid at the national level. It is a many faceted subject. It should be offered in the eleventh or twelfth grade.

At the ninth grade level a course in vocations should be offered which would not be for the purpose of identifying the student with any specific job or profession, but would offer him a broad view of the world of work.

The Social Science Department should be kept flexible. The opportunities for team teaching, independent study, simulation and the humanities approach are unlimited. For example, consider the possibility of the humanities approach in World History and American History. When the unit on ancient Greece is being studied, the art teacher could have an art display and a lesson on the history of Greek Art - the English teacher could introduce the class to the fascinating Greek tragedies and other literature of that time. The music instructor could make a valuable contribution with records, pictures, thus bringing to life what could otherwise be a rather dull, drab unit of history. Think of the possibilities in American History.

Simulation would be a good method in Current Problems and Comparative Governments courses. A situation can be set up such as a United Nations or a kind of government and the students can get a definite idea as to the problems involved and try to work toward solutions.

With cooperation from the staff and utilization of materials and facilities, and with freedom for students to investigate, make choices, discover and form judgments, the possibilities for learning are limitless in the Social Science Department.

Equipment

In selecting equipment for the Social Science Department, set a goal to obtain that which will provide the greatest amount of physical aid for the most efficient and effective teaching.

To do the most effective job of teaching social science subjects, a comparative method must be used. Therefore, it is essential for each room to have accessible a good supply of current reading material along with good reference material.

Geographic, historic, and political maps with a plastic overlay will be needed in this department. Again there is a need for more than one map of certain areas. Each room should have a physical-political map of the World and one of each of the continents.

The teacher would need a political-physical twenty-four inch globe for each room.

Metal map racks in each room should be placed so they would be located close to the lecture area.

The department would need a current set of encyclopedias on a rack with rollers or wheels so it could be easily moved wherever it would be needed. If the library is closely located, additional reference could be used there.

The department would need at least two large atlases in each room along with a Webster's Geographical Dictionary.

Each room would need at least a thirty linear foot chalkboard or a multiple chalkboard of comparable size. A bulletin board of at least thirty to thirty-six linear feet with a smaller flannel board for individual work and a pegboard to be used for display space.

Each room should be equipped with magazine and newspaper racks and a thirty linear foot bookcase for supplementary books.

As part of the electrical equipment of the department, we would suggest a television set, a radio, a tape-recorder with earphones, a movie projector, stripfilm projector, an overhead projector, an opaque projector, and a record player. These should be on movable carts so that this equipment could be easily moved from one area to another. To use these effectively, each room should have a screen and a portion of the wall painted white on which projections could be shown. The windows will need built-in darkening shades.

Filed in the central office of the department would be a micro-film library to make use of the most current material available but not found in our current editions. We would file all stripfilms, movie films and records in the library of the Social Science Department office. Other equipment in the central office would include a duplicator and a long-carriage typewriter. Large type typewriters are needed for making transparencies.

This equipment will need ample storage space which would include a four-drawer file, adjustable shelving, and lockable areas.

Trapezoidal tables to be used for the students' desks which could be arranged to fit any given situation, and a large table for special project work should be placed in each room. Folding chairs for additional and emergency seating must be included. The teacher's desk should be large enough to supply ample work space and large storage drawers for material that will be used daily. Each teacher needs a portable podium for the use of the students in giving individual reports, as well as for the use of the teacher in lecturing and teaching the class.

A thermostat should be placed in each room so that the temperature can be controlled and arrangements should be made to have a fresh air intake to allow a steady flow of fresh air in the rooms.

As an added attraction for the department, a lighted, glass display case could be placed near-by in the corridor. If the case were equipped with a lock, valuable items of special interest could be placed there.

Space Requirements

This report is to cover the physical outlay of the social science facilities. Since the distinction between this area and "Materials and Equipment" is not always clear, there may be some duplication.

1. Office Suite. Rather than having individual offices, there should be a central office suite for all social science teachers, with separate desks for each teacher in the same suite. Such an arrangement would permit closer coordination of the department and closer communication between teachers.

The office suite should include a specially designed large storage cabinet to store audio visual equipment and materials. This would permit more decentralized storage of these materials and would make them more immediately available. The cabinet should be carefully designed for the materials it is intended to hold, with large flat drawers for maps, etc.

2. The Classroom. The recommended size for an average classroom designed to accommodate thirty students is a minimum of 900 sq.ft. of floor space.

   Acoustics should be given particular attention, since students are likely to be better behaved if the acoustics are good. Carpets in the classroom will enhance good acoustics and are cheaper in the long run since the work involved in keeping the room clean is appreciably less. Consideration should also be given to the psychological and emotional effects of color on the students. Warm pastel shades are to be preferred over harsh, bright colors. One favorable suggestion was for one wall to be paneled to provide pleasing variety in appearance and to enhance acoustics.

   Every classroom should have outlets for radio and television. A radio should be located in the office suite with hook-up to every classroom to enable all classes to listen to such important events as they are taking place. There should also be plenty of electrical outlets.

   Each classroom might also include a multi-track chalkboard with movable panels. This would enable the teacher to write more material on the board than would otherwise be possible, moving each panel into view as it is needed. This would enable the teacher to face the class at all times. Recommended amount of chalkboard space: 24-30 linear feet.

3. Classroom Furniture. The newest trend in student desks is a type of desk which can be stacked. This would allow for more flexibility in the classroom, as the desks could be stacked when there is a need for the class to be divided into smaller groups. The desks should be large enough so that the student will be able to put both a notebook and a textbook on it conveniently. A specially designed desk with a large basket on the side for maps or atlases might be considered for the social science rooms.

   The classroom should include at least six linear feet of counter space for display or for students working on projects. Part of this space will also be needed as a permanent station for large atlases.

   One recommendation with recognized merits was the plan of having classrooms which can be thrown into a larger area for larger groups. This would call for folding doors between classrooms.

4. Floor Plan and Arrangement of Rooms. The structural arrangement receiving the most consideration was the circular building. Such a plan would permit the classrooms to be located near a centrally located library, a definite advantage. Also, fewer supporting walls are needed, which would allow for greater flexibility

such as opening several rooms into a large common area. The pie-shaped classroom is generally better to work with acoustically and structurally.

5. Small Group and Study Facilities. The facilities should include a conference room for small seminar groups. There should also be several individual study carrels for students engaged in independent study projects. These might best be located in the office suite since the student would then have access to resource materials there.

DRIVER TRAINING

Educational Outcomes

Under Educational Outcomes, one of the main objectives will be to develop skills in driving. Another will be to teach proper attitudes which will include respect for others and law enforcement. It should also include basic car maintenance along with the legal aspects of proper licensing, registration and insurance.

The trends look as though under the present situation that the future enrollment would require at least the services of one full time teacher. This could be set up under five periods with approximately twenty pupils per class. If there are two or more qualified driver education instructors on the staff who are interested in safety, these classes may be divided between them as desired. Simulators and driving ranges are now desirable and better programs for the instruction. Simulated driving instruction gives opportunity to develop basic skills, defensive driving techniques, handling of emergency situations, and freeway driving, many of which are not available in the ordinary classroom and driving procedure. The driving range is a secluded area where the basic items of driving can be taught without interruptions by traffic from other sources.

Activities

In this classroom there will be sixty hours of classroom work for each twenty students involved. The balance of the time will be used in giving driving instructions. If the driving is done all in the car, there will be 120 hours devoted strictly to behind-the-wheel driving, where four members of the class will be in the driving situation. The remainder of the class will need to be in a study hall or library situation at this time. If simulators are used, three hours behind-the-wheel driving will be required on the street and the balance of the time will be made up by use of simulation, which would require twelve hours in the simulator for each student. The figures just quoted are minimum figures. Actually, if time is available it is good to have more hours of each the driving and the simulator instructions.

Orientation and Relationships

The classrooms for driver education should be situated in the academic portion of the building. There should be no special traffic problems in this department. Consideration may be given to an outside entrance to accommodate a summer program if one is developed.

Furniture and Equipment

There should be seating for twenty-four students. Chalkboard area available approximately 6' x 4', with the balance of the wall space suitable for bulletins and poster display. There should be storage space around the perimeter of the room below the bulletin board space. The seating and the teacher's desk should be similar to that in any other academic subject. The overall area of the classroom should be approximately 800 square feet. Special equipment should be provided as follows:

1. A driver evaluator or machines to test visual equity, curricle vision, distance judgment, color blindness, and reaction time.

2. A driver education car equipped with dual controls, hydraulic brakes, outside mirrors, and proper signs. It is recommended that this car be provided under the loan provision now made to dealers.

3. It is recommended that a room be provided with eight simulators and the proper equipment to go with them. This would include a screen and a projector and a test recording machine and eight individual cars for instruction to students. This room should also be approximately 800 square feet and if it could be, 20' x 40' would be more suitable for projection of the pictures on the screen.

Utilities

There will be no requirements for special utilities other than electrical outlets. There should be electrical outlets available from each wall and in the instructor's desk.

Visual, Thermal, and Acoustical

A variety of visual aids should be provided. These will include a 16 mm projector and screen, an overhead projector, a technicolor cooperation 8 mm projector, and films.

It is very desirable that the room be air conditioned, as this facility will very likely be used for summer programs for both students and for adult instruction. Also, as there will be a large amount of visual instruction with audio provided, the room should be acoustically treated.

Enrollment and Space Requirements

Projected enrollment statistics indicate that there will be approximately 100 students in the driver education section per year. We have already noted that a class size of twenty would be desirable. This would be that there would be five such classes set up for the use of this room and under the provision of providing all the instruction in the car, we have recommended that the class be in session for the entire year.

The ideal program for this school would be to provide space for a classroom of 800 square feet and a projection room for the use of simulators of 800 square feet.

In conclusion, our committee would like to emphasize the seriousness of the safety problem in our country. Last year more than 49,000 persons lost their lives in our streets and highways and over 600 people were killed in the streets and highways of Kansas. In a comparable situation in Viet Nam, less than 2000 persons have been killed. This we deplore of course, but are we paying enough attention to our own problem here at home.

SCIENCE

In order to determine the role of science facilities, it is first necessary to define the major purposes for science teaching. Objectives for science education have evolved rapidly in recent years. There seems to be a growing recognition that the meeting of college entrance requirements is not the primary function of science in the secondary schools. The teaching of science is concerned with helping students understand the facts, concepts, principles, and generalizations of science. Greater emphasis is now given to helping students think critically, be creative in their approach to problem-solving, and develop skills and techniques in the use of scientific methods of thinking and acting. Renewed emphasis is being placed on individual instruction even in the face of mounting enrollments. Science programs are beginning to reflect the social impact of science. Such objectives require methods of teaching which go far beyond the lecture-textbook-recitation procedures. Laboratory work is gradually leaving behind the lockstep of the traditional laboratory manual. To accomplish these goals and accommodate changing procedures, time, space and adequate facilities must be provided for a wide variety of learning activities and experiences. Large-group instruction, team-teaching, instruction through mass media and programmed learning must be evaluated for their place in science instruction.

Trends

Facilities that meet today's needs and yet look to the future must be related to trends just as the trends themselves relate to the evolving goals of science. The facilities should meet present needs and at the same time remain flexible for an evolving science program for the future.

Today's trends indicate greater emphasis on inductive development of concepts and principles through the discovery or problem-solving approach in science teaching. Teachers will permit students to discover principles for themselves through experimentation and problem-solving. Thus, the teacher often acts as a director of research rather than as the ultimate source of information. At other times, information is obtained through reading, discussion, lecture demonstrations, and even verification exercises. The laboratories then must provide space and equipment for a wide variety of experiments performed by the students under the direction of the science teacher as well as demonstrations facilities. Space for reference work will also be needed.

All levels need instruments, supplies and equipment that the students can manipulate. Space should be available both inside and outside the building for pupil activity in all areas of science. Arrangements for facilities must be such that the teacher can direct varied activities with a minimum of traffic and confusion and with a maximum of safety and control. A movement toward science for all students and not just the college-bound student means more classrooms and laboratories will be required. Activities such as science fairs, science clubs and out-of-class projects are on the increase and space must be provided for this purpose. Flexibility in room arrangement will include furniture and major items which will provide the best area for learning.

Number of Sections

Plans call for 15 sections of science as follows:

Biology 4, chemistry 3, general science 3, physics 1, earth science 1, modern physical science 1, physiology 1, and aerodynamics 1. Each section will consist of 24 students except biology which might have 28 students.

Number of Required Facilities

One chemistry classroom-laboratory
    One chemistry storeroom
    One office and preparation area

One physics classroom-laboratory
    One physics storeroom

One biology classroom-laboratory
    One biology storeroom
    One office and preparation area

One student preparation and workroom

One greenhouse

One planetarium

Chemistry classroom-laboratory

Ordinarily two days of the week will be laboratory work for the students. Monday, Wednesday and Friday will be lecture days with part of the period for study or students doing reference work.

On the lab days, the students will perform varied experiments in which they will use chemicals, balances, water, gas and electricity at their particular stations. They will use the acid dispensing sink near the center of the lab end of the room for the stronger acids.

They will use checked out equipment and will keep it in a locked drawer for their own particular use. At each station for each pair of students, there will be a community property locker which will be larger than the student's locker to accommodate various extra equipment of all sizes. A student from another station may borrow from another community property any of this special apparatus but it should be returned that same day so that each community property locker is identical as nearly as possible.

The students will have under supervision access to the island fume hood for special experiments involving obnoxious and poisonous gases.

There is a library and reference table at one corner of the room where research material may be found and any reference books related to the chemistry department.

Different students on different days when lecture demonstrations are in progress will be given an opportunity to help the instructor with certain demonstrations. This will give the student the satisfaction of having participated in an experiment and probably give him an incentive to broaden his knowledge of chemistry.

Chemistry Storage Room

The instructor will store chemicals and apparatus in a systematic manner in this room. A cart may be used to carry the chemicals and apparatus to Room 3 to the teacher preparation area or directly into Room 1. The instructor will keep this room No. 2 locked.

Chemistry and Physical Science Teachers' Preparation and Office Area

Qualified students especially those working on research or special projects will be given opportunity to work in this area under supervision. There is a door leading from the chemistry lab into Room 3 enabling the student or teacher quick access to either Room 1 or 3. A vise and workbench, two standup storage cabinets and a student counter can be used for varied experiments and research. The student will have access to a sink also in this area.

The two instructors' offices will enable the instructors to grade papers, prepare classes, file papers and have conferences with students, parents, or any other personnel. The instructor can partially supervise students working at the counter through the glass window of the office.

The chemistry instructor will prepare experiments at the preparation counter. These preparations may either be placed at the pass-through window or be carted through the door.

Opposite the chemistry preparation area, there is a teacher preparation area for physics and physical science lecture and lab. The instructor may have the necessary apparatus and other necessities ready for the pass-through or have them carted through the door to Room 5, the physics room.

Physics and Physical Science Classroom-Laboratory

Ordinarily the lab work will be held two days a week and lecture and study three days a week. The students will have access to a reference table and library. They will have annex counters to weigh objects and perform electronics experiments. A standup work counter will be used for special research work or any varied experiments. The instructor can move from station to station very easily and can check the progress of students freely.

The instructor will demonstrate special experiments at the instructor's desk and also will be lecturing from this desk with access to chalkboard behind him.

Physics and Physical Science Storage Room

The instructors for this area will group the apparatus and assemble all equipment needed before any of the classes. The counter will enable checking of equipment.

Furniture and Equipment

I. Fixed equipment

  A. Chemistry lecture and lab room
    1. Six lab tables attached to the wall with fixed storage along the wall. Each with sink, gas, electricity.
    2. Reference table, library storage along the wall.
    3. Instructor's case, near instructor's desk.
    4. Shelving with glass sliding doors.
    5. Instructor's desk.
    6. Chalkboards with three layer storage cabinets below back of instructor's desk.

A. Chemistry lecture and lab room (cont'd)
   7. Acid dispensing sink - storage below.
   8. Ventilating fan above acid dispensing sink and above instructor's desk.

II. Portable equipment

A. The chemistry and physics departments should each have a cart.

B. The chemistry tables should have shell stone tops and the physics tables should be acid resistant along with special top material.

C. Chalkboard, 4' width, green, magnetic.

D. Bulletin boards, 4' width.

E. Screen mounted on wall in chemistry and physics room.

III. Storage has been mentioned in detail previously.

IV. There should be centrally controlled gas as well as electricity.

V. There should be a display cabinet in both rooms and possibly in the outside corridor.

Biology Classroom-Laboratory

Activities:

1. The prevalence of activities characteristic of a democratic situation: the free discussion of students, committee work and planning.

2. The use of direct experience for learning in the preparation of cultures, microscope mounts and the study of unknown materials from the community.

3. The employment of a variety of study techniques, including reading but extending beyond the use of the micro-projector, the making of sketches and drawings, the use of photographs and the preparing of reports.

4. The use of a variety of resources and materials.

5. The individual research and study of the advanced study.

6. The use of adjoining facilities such as greenhouse and planetarium.

7. Lecture, experimentation, observation, project display and teacher preparation are the main concerns of this area.

Shape

The most desirable shape would be rectangular.

Furniture and Equipment

Twenty-eight tablet-arm desks are needed as well as 7 permanent 4-student laboratory tables. Each student lab table will be a sit-down table with stools. Individual storage will accommodate four students. Each table has an oval sink, individual electrical outlets and gas valve.

An exhibit case for display of specimens should be placed in an alcove of the corridor of the biology room. It would be desirable to have access to the display by means of doors in the rear of the case from the biology room. This display should be illuminated and have adjustable shelves. The illumination of the case may be either incandescent or fluorescent. They should contain an additional electrical outlet and ventilation. The display should be at eye level.

Three annex work and storage stations are provided for in the biology room. The table is 4' long and is located along the wall work area between the 4 student tables. These tables will be equipped to accommodate special microscopes, balances, preparing slides and be of the sit-down design.

The centrally located table in the lab area has a suitable garbage disposal unit on it with the sink and other facilities.

A ventilated animal case which is equipped with exhaust and charcoal filters, etc., is to be provided along the back wall of the lab area. This case is 62" x 22" x 82". This case will solve the problem in handling animals and eliminate the need for a separate animal room.

A fumehood (island type) is located along the back wall of the laboratory for use in instructor demonstration, for material preparation and for service as a work and safety center in the lab. It is with ventilated base and cabinet for storage of acids and reagents. It is 5' x 30" x 82" with a 1½" shellstone top. It has both sides ventilated through fumehood superstructure and a cold water gooseneck, double gas and electrical outlets.

The climatarium with a mobile cart base, which is 51" x 17" x 65", is located along the back of the lab. It has an automatic ventilating fan and fluorescent and incandescent lamp switches.

A storage case 62" x 27" x 82" is provided along the back wall of the lab. This case will service point of use facilities in the room itself.

There is a pass-thru sliding door along the non-windowed part of the lab. This will service into the student preparation area.

There should be window counters along the wall where space provides. It is also feasible to have tackboard above this.

There is a glassware utility sink located along the non-window area of the lab and by the door which leads into the teacher preparation area. This sink is 6'1" long, 31" wide and 38¼" high. Hot and cold water gooseneck fixture. Cupboard base cabinet below it. There is a pegboard above this sink to allow test tubes and other glass materials to dry properly. There should be a convenience of electric receptacles in this sink.

The instructor's demonstration table and desk is a combination unit that is 8'2" long, 30" wide and 36" high. The desk is actually a movable cart and is available under NDEA. This area has a cold water faucet, a double gas and a 110 volt A.C. receptacle mounted and upright rods and cross bar for demonstration purposes.

Behind the demonstration table is a sliding chalkboard of yellow or green color with a wall mounting for a pass-thru area into the instructor's prep area. It is 8'5" wide and 47¼" high. There are actually four sliding chalkboards 47" x 42" in this unit.

This room also has a reading table to accommodate four students. The table is provided with chairs and is located behind the general lecture seating area beside the library shelves.

There is a projection table located in the back of the lecture area. The room should be provided with provisions for darkening the room as well as a pull-down wall mounted movie screen located behind the instructor's desk.

There is a display case located along the wall by the library area. This case is illuminated for wall use and is 62" x 22" x 82". There should be an instructor's case located next to the display case. This case is 62" x 22" x 82".

Areas of open shelving with a counter top should be provided for in open areas along the wall.

The suggested size of this area is 49' x 24'. This room is entered from the hall by one door. The room has two pass-thru's and a door which leads into the student prep areas for advanced work and into the teacher's preparation area.

If so desired, the room may be without natural lighting. Fluorescent lighting is desirable for the area. The odors from plant and animal materials make it essential to provide separate and adequate ventilation for all rooms in this biology complex. The air in these rooms should not be recirculated to other rooms but should be vented directly to the outside. Provisions should be made for separate and automatic temperature control of the room by the instructor due to materials which must live over weekends. The color of the room should be very light insuring good blending of the entire area. All gas outlets and possibly water should have one master switch to be controlled by the instructor. Fire extinguishers should be provided for the area and floors should be non-slip. The temperature of the water should be 120° F. for the sink area.

It is essential that care be exercised in the acoustic materials chosen for the science and biology rooms. The materials should be fireproof due to the fire hazard in the science complex.

Adequate amount of wall electrical outlets should be provided in addition to the outlets on the tables and work areas.

A clock should be provided in each of the rooms in the science complex. Such clocks are essential to laboratory work and other learning activities where the responsibility for the use of time rests in part upon the students.

A high gloss paint should be avoided in this complex. Paints with high durability from the standpoint of resistance to corrosion as well as to the process of washing are those having a rubber base.

All conduits, vents, water pipes, etc. should be placed in outside walls if possible.

It is desired to have mounted charts above the teacher's demonstration desk. This can be in connection with the available movie screen.

Biology Office and Preparation Area, and Storeroom

The need for this area is very evident. The storage space for biological equipment and supplies is usually of two kinds: that which is an integral part of the classroom and that which is in a separate storage or preparation room. The space for storage in the classroom has been provided by the separate cupboards, cabinets, display cases and drawers which are part of the laboratory tables. Storage space in the stockroom and preparation room is usually provided by cabinets, cupboards, cases and open shelves. In general, the storage room is used for bulk storage and for those items that are used infrequently or are too unsightly to be stored in the classroom. Open shelves are economical and afford easy access provided the area is not in a dust collecting space. In planning for the bulk storage of the chemicals used by biology, a total of 200 inches (line) of shelf space should be provided. Approximately 2100 line inches of shelving should be provided for items such as models, battery jars, glassware, etc.

The importance of the preparation room is great enough that it should be included in the building plans. It will also serve as an office for the teacher. The room generally has work facilities as a sink with running hot and cold water, gas, electricity, workbench or table, handtools, basic equipment and supplies and some storage.

The space for this total area is 15' x 25' at least. There is a door into the biology storeroom that can be locked and it opens into the teacher preparation area and is serviced by a pass-thru from the teacher's preparation base cabinet into the main biology room behind the sliding chalkboard. The hall leads into the greenhouse and into the planetarium areas.

The teacher's preparation area should have a refrigerator with a deep freeze, a 2-burner stove and an autoclave as major equipment. There is a major utility sink with a large basin for use with greenhouse specimens. The sink should have a sand trap. The sink should be provided with hot and cold water bibs. Storage may be under the sink. A garbage disposal is desirable here also.

A base cabinet lines the wall which is behind the sliding chalkboard pass-thru into the biology room. This cabinet is used for storage and placement of materials which are to be used in the main biology room. Gas and ventilation should be provided also.

A project workbench with drawers is provided in this area for teacher preparation. An upper cabinet is over the workbench to serve the teacher with access to necessary supplies.

A teacher's desk with a 2-drawer file is located in the adjoining area to the preparation room. This room should provide the teacher a place for personal grading and organization as well as student consultation. The area could have a glass front and look into the student preparation areas.

Biology Storage

This room, as previously mentioned, should adjoin the teacher's preparation room and could be made into a part of it. The suggested number of line inches for shelving was previously given. The room should have at least two chemical shelves and the rest counter shelving on both sides. The shelves should be of adjustable height.

Electrical outlets are to be provided in all three of these areas. Adequate lighting is needed as no natural light should come into this area especially the storage room.

This annex area must have a passage to and from the classroom, the student work area, the greenhouse and the planetarium.

Student Preparation-Work Room

One room with two preparation counters are to be provided. This room is entered by a door from the lab and by a door from the teacher's preparation room. The room is also serviced by a pass-thru into the back part of the general lab area. This room should be at least 15' x 24' and fit into the plan of the main biology lecture and laboratory area. Each student work area is identical. This area is to provide the advanced student a place to work independently of the general lab area. Experiments which require time may be set up in this area also.

A project workbench is included in each student area. This bench is 6' x 24" x 30". The table has a vise attached to it. A microscope table is provided in this area with a sit-down stool. A counter case is provided for storage in this area. A sink is provided as well as gas and electrical outlets. Wall cabinets for storage are located above the tables and sinks. If the room is lighted, this area should be provided with a window counter. One of the student rooms may contain a bio-work center if the resources for purchase of such a lab convenience are available. This center would be necessary for BSCS biology as the numerous micro-organisms can survive and thrive only within a relatively narrow temperature range and this bio-work center will provide this range. All of this unit is designed to implement the curriculum proposed by BSCS. The unit is 62" x 27" x 82". It has an air grille through the bottom and front with a $\frac{1}{4}$ H.P. compressor. The external features of the room should resemble those of the main laboratory.

Greenhouse

Very few plants and animals will flourish in an ordinary classroom for any length of time because of the variations in temperature, humidity and lighting which occur overnight, over weekends and during vacation periods. A satisfactory solution to this problem is the provision of a greenhouse or a growing room.

Orientation

The greenhouse is placed preferably on the south side of the school building or on the east side as a second choice. A greenhouse built on the ground has the advantage of providing ready access to out-of-door resources. It should be separated from the classroom by doors and windows. Thus, the desirable temperature would be lower and the humidity much higher than in the ordinary classroom. The room should be accessible from the biology laboratory area and the out-of-doors.

Structure

The roof pitch should be not less than 26½° (6" rise in a 12" run). The convential width of the windows in the roof and sides is 20". Repairs and replacements are facilitated by the use of this common design. The frames for the windows have been made generally of cypress or redwood. However, aluminum frames for the windows are apparently satisfactory.

Work Facilities

Plant benches can be made with a galvanized iron frame supported on iron pipe legs. The sides and bottom are made of waterproofed transite. Valve-equipped drains for the benches provide for constant water-level or sub-irrigation. Growing beds may be provided also directly on the ground. Separate potting tables should be provided. It is possible to use this area to include an aquarium and some animal cages as well as plant growing purposes. Cement walk should be provided in the greenhouse. It should include space for on-going experiments which students are involved in, as well as for growing the living things to be used in future experiments. It should have space for storage of soil pots, flats, fertilizers, tools and related materials. There should be provisions for a sink with a sand trap, floor drain, 2 hose bibs and some means of artificial lighting.

Greenhouse Heating, Ventilation and Humidification

A separate line directly from the school heating plant to the greenhouse should be provided. This line should be separate from the controls for the remainder of the building so that the temperature of the greenhouse is not lowered excessively during the weekends and vacations. There should be sufficient radiation pipes to maintain a greenhouse temperature of 70°. The pipe should be in the form of converging coils and should run the entire length of the greenhouse. Thus all parts are kept warm. A radiator of several pipes may heat only a small part of the greenhouse, the other parts being too cold. The thermostat should be centrally located.

Ventilation for the greenhouse should be provided by means of movable sash at the sides and the ridges. The side sash is manually operated. Because of the heat produced by direct sunlight there must be a ridge ventilator. The ridge sash is automatically operated; it is controlled by a thermostat.

Some means of humidification should be provided. For the small greenhouse, an electrically driven centrifugal humidifier is adequate.

Utilities

A bib centrally located provides running water for sprinkling and washing purposes. A galvanized iron sink and water faucet serve such needs as washing tools and receptacles and mixing solutions. The hard surfaced portion of the floor should be sloped toward a drain for waste water. This drain should be large and as previously stated should be fitted with a sand trap. All electrical wiring in the greenhouse should be in rigid conduit with marine-type fixtures. There should be at least two 200 W. outlets for lighting fixtures. A receptacle should be placed near the ridge for the ventilator control; two receptacles should be placed at such work spaces as the plant benches and potting tables.

Storage

Various tools and supplies must be stored in the greenhouse. Shelves and drawers should be available for flower pots, tools, thermometers and small supplies. Bins should be provided for the storage of soil, sand, fertilizer, and peat moss.

Area

An area of 13' x 20' should be adequate for the greenhouse. It should fit the general building plan and the adjoining biology lab room.

Planetarium

The planetarium should adjoin the biology lab, physics lab, chemistry lab, and the mathematics area. All classes in the science complex should have access to the planetarium. It is suggested that the planetarium be 24' x 24' with a 20' dome, thus allowing an excess of 2' on each side. The seating area should be on 9" risers in a circular fashion with the projector located in the center of the room. The seating should be of the elongated back type reclining chairs which go about 45° back in their tilt. This area should provide accommodations for a group of 50. The area should have access from the outside to allow traffic from non-school groups to enter and leave the area.

The dome should be built rather than purchased. Acoustical plaster should be sprayed on the ceiling.

The justification of such an area must come from use by community groups and school planned projects. This area could be related to the greenhouse and in a direct line with the biology lab area.

A lecture table should be provided in the area in addition to the seating of the fifty students.

Community use of the planetarium should be considered in the space and seating planning. Tilt-back seating with elongated chairbacks is desired.

Orientation and Relationship to Each Other

The physics and chemistry rooms should be located adjacent to each other with a joint teacher preparation area in between. It would be feasible for the biology department to be located across the hall from the physic and chemistry rooms. Locate the student preparation room for easy access and supervision. A small animal house should be provided adjacent to the biology classroom-laboratory. The darkroom should be located adjacent to the physics classroom-laboratory. The darkroom should be equipped with two sinks, counter across one end and parts of two sides, storage space, and forced ventilation. Use non-reflecting paint in the darkroom.

To facilitate proper use of the planetarium, the science complex should all have easy access to the area. The greenhouse and planetarium should be located directly behind or in line with the biology room with easy access to and from the area. Doors to the preparation rooms and classrooms should be large enough to permit carriage of supplies and large equipment and furniture.

The science area should be in close relation to the mathematics department.

Rooms Needing an Outside Entrance

The entrance to the greenhouse should be both inside and outside. The planetarium should have an outside entrance to make it available for outside groups without interferring with normal classroom teaching. It should also be accessible from the science complex and the math area.

Most Desirable Exposure for Natural Lighting

The greenhouse and biology rooms should have light on the north side. Windows in biology room on north side. (Not on south) The physics room is to have north windows also. Provisions to darken the three general lecture-lab rooms should be made. The greenhouse should receive light on three sides if possible.

HOME ECONOMICS DEPARTMENT

Home economics facilities contribute to effective teaching and learning when they are planned in relation to the purpose of homemaking education and to the concern of individuals and families in the local school district. Because of the variety of purposes that should be provided to encourage independent study and group activities, three rooms should be provided for this department. Sixteen to twenty students should be allotted per class with space to accommodate both large and small groups and allow for team teaching through the use of movable partitions.

Two years of general homemaking should be offered and advanced homemaking should be geared to needs of the students and the community.

One room, the family living room, with uncommitted floor space should be provided for teaching units such as: housing, child development, home management, home furnishing, care of convalescent in the home and family relations. It serves as a hospitality center where social experiences can be arranged, and it makes possible a flexible space for using such teaching methods as discussions, talks by resource persons, committee work, demonstrations, and viewing visual aids. The approximate dimensions for this room are 20' x 30'.

The clothing area provides emphasis on teaching textiles and personal and family clothing, application of basic art principles in clothing, selection and construction, care of the wardrobe, and personal grooming. In addition, this area should provide sufficient floor space flexibility for teaching other areas such as: housing, child care, home management and home furnishings. The approximate dimensions for this room are 30' x 40'.

The foods area, designed with emphasis to teach foods and nutrition, will not have as much flexibility since it has larger equipment. This should be a place which will help pupils gain knowledge, understanding and skills in the selection, preparation, and serving of family meals and foods for special occasions. Six units will be needed; however, this depends on enrollment, number of teacher stations and type and amount of movable equipment to be used. Other units which can be taught are: child development, family economics, laundry, and health. The desired dimensions are 30' x 40'.

The homemaking department should be on the first floor and should have an outside entrance (possibly through a patio) for access to delivery services. This department should have a southeast exposure. The efficiency of working conditions for pupils and teachers will be aided by locating all home economics facilities adjacent to each other.

The homemaking department should be in a place that is quiet, not near the lunchroom, gymnasium, or music room unless acoustically treated. Also facilities should be acceptable and available for adult education classes.

Free floor space shall be planned for the center of each room so that equipment can be moved from one place to another. Doors from the hall will be placed in each room so that persons can enter from the hallway. One door should be placed to the outside of the foods area for easy delivery of groceries.

This department should be planned with the greatest flexibility so that different kinds of classes could be offered as need arises. It is important that the least amount of heavy equipment be made permanent. As much equipment as possible, such as book shelves, chests, light weight tables and chairs which can be stored easily when not in use, movable dividers to separate space for individual and small group work, having some trapizoidal shaped tables which can be used in various arrangements, sectional furniture, portable equipment such as ironing boards and sewing machines should be on castors so that they can be moved from one place to another.

Home economics facilities should represent attainable standards of home living in the community and at the same time reflect new development in equipment and furnishings. They should stimulate interest in making homes livable and satisfying, provide pupils with the opportunity to study and work in a colorful and pleasing environment designed also to lead them to new understanding Flexibility is the basic concept to keep in mind in planning and equipping a home economics center with the following divisions kept in mind:

Foods Area (fixed equipment)

6 unit kitchens (30" range and 36" double sink)
Strips of electrical outlets placed at intervals in the room to be used for small equipment
1 washer and dryer
1 garbage disposal in one kitchen
1 portable dishwasher
1 built-in oven for one kitchen
1 11 cu. foot refrigerator with freezer space
1 11 cu. foot upright freezer

Foods Area (portable equipment)

4 mobile counters with storage in some and with adjustable shelves
6 lightweight breakfast type tables
24 lightweight chairs
Formica-type work surfaces are preferred
1 chopping board, preferably in demonstration kitchen
Chalkboard and tackboard space (at least 15 lineal feet each)
Bulletin board, located near door
1 desk and chair
1 four-drawer filing cabinet

Clothing Area (equipment fixed)

Furniture and equipment
Strip electrical outlets, located at intervals
1 lavatory for washing hands
Garment-fitting area with triple mirror and fold door

Clothing Area (portable equipment)

2 standard ironing boards
2 press boards
2 steam irons
5 portable sewing machines
5 console type sewing machines

Equipment (portable) continued

2 tote drawer cases for storage (store materials for 32 students)
6 light weight movable tables, approximately 4' x 8'
Chalkboard and tackboard space (at least 15 lineal feet each)
24 chairs
1 desk and chair
1 four-drawer filing cabinet

Living Area

Equipment (portable)

1 mobile storage cabinet for visual aids
1 movable cart for visual aids
1 overhead projector
1 film strip projector
1 opaque projector
1 movie projector
1 screen
1 davenport
2 occasional chairs
Hanging light fixture
Draperies
2 occasional tables
1 dining drop-leaf table
6 chairs
Carpeted living room area

Storage Area

This is a place for locating teaching materials, media and equipment. The storage areas should provide storage cabinets designed for specific purposes and flexibility and located where easily accessible, thus providing equipment and furnishings easy to use and care for. Adjustable shelves should be used throughout.

Foods Area

Storage space for:

Small equipment in each kitchen unit
Cleaning equipment
Tea towels, dish cloths, table cloths, etc.
General storage for staple supplies
Storage shelves for books, to be located near entrance
  (possible decorative pull shades for shelves when not in use)
General storage for large equipment.

Clothing Area

Storage with adjustable shelves for steam irons, pinking shears, pressing equipment, etc.
Storage for five portable sewing machines
Peg board to be used for background

Clothing Area - continued

1 set of tote type storage for illustrative materials
Tall storage for ironing boards
Closed wardrobe storage for garments under construction
Book storage for students' books and personal belongings
Display and storage cabinet for magazines and books (8' x 10')

Living Area

Linen storage for place mats, table cloths
Storage for silverware and china
Storage behind linen area includes adjustable shelves which will make it flexible for storage of ironing boards, audio-visual aids, home furnishings, samples, child care equipment, etc.
One case of tote drawers (36) may be placed here

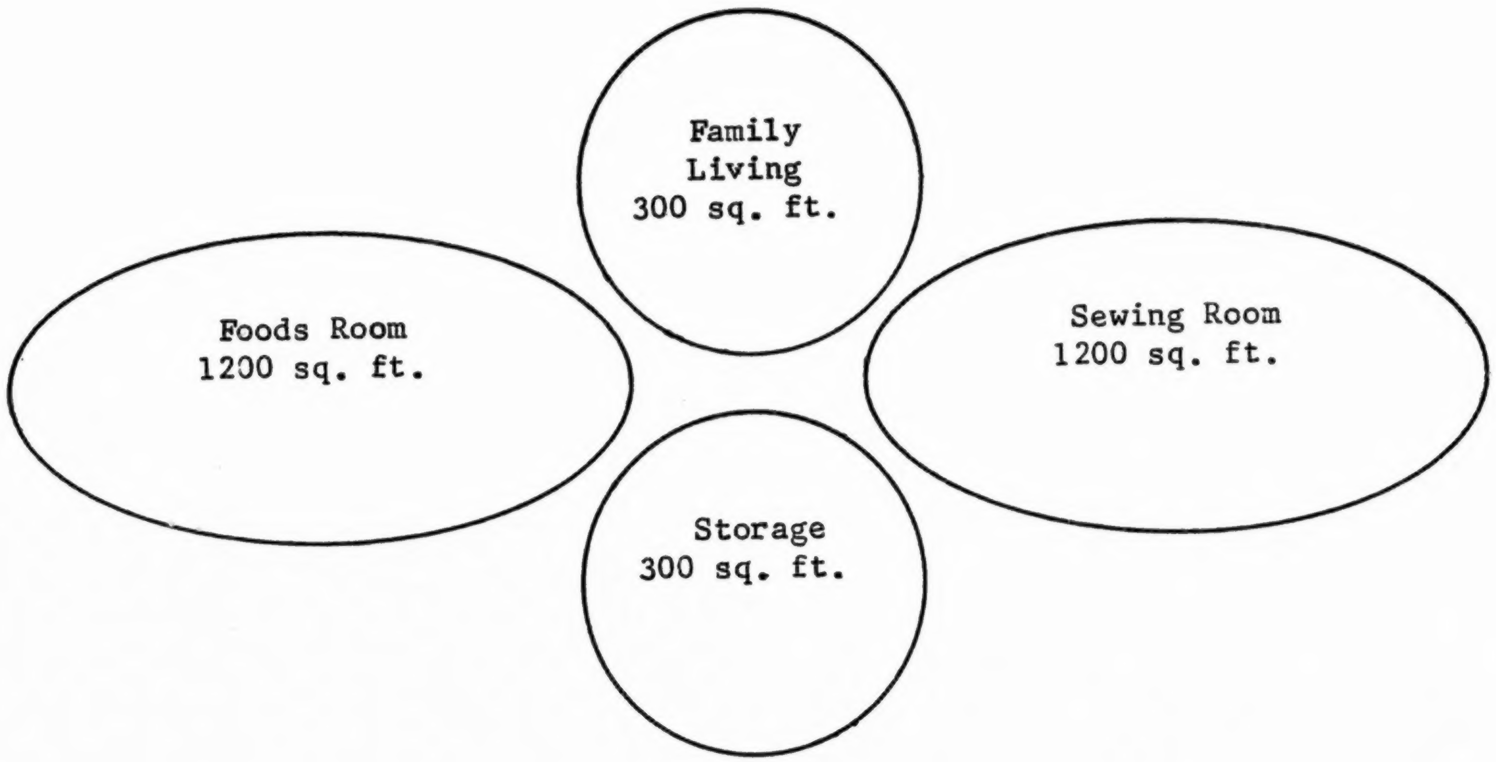
Special Requirements

A master switch should be installed for safety purposes. Hot and cold water should be furnished in all spaces. Gas lines and 220 electrical outlets for ranges. Ventilation fans should be placed above all ranges. The close work of sewing necessitates 150 foot-candles of light intensity. Because of the high noise level, the area should be treated acoustically with high sound retardance. Carpeting should be installed in the family living room areas.

Strips of electrical outlets should be accessible in all areas. Gas outlets should be in the kitchen area. Water and drain connections should be provided in the kitchen and clothing areas for sinks, lavatories, and other plumbing fixtures. Regulation sized doors should be placed to direct traffic from working areas to the hall.

The arrangement of equipment and the type and color of furnishings influence the attractiveness and effective use of each area. Major characteristics should be reflected in the arrangement of facilities and should be designed appropriately for a southeastern exposure.

TWO TEACHER DEPARTMENT



1. The foods room to have an outside door.
2. Folding partitions between family living unit and other two areas.

INDUSTRIAL ARTS

Industrial arts is not "manual training"; it is not "vocational education," but it is a broad basic general education curriculum area. By definition, industrial arts education helps to prepare our students for effective living and competent citizenship in this technological age by providing experiences which deal with materials, tools and machines, processes, products, occupations, and problems of the modern industrial world.

Industrial arts courses are much broader in content than the manual training known to many of the older people. Industrial arts courses are exploratory in nature rather than vocational; that is, we teach concepts and principles that cut across many occupational fields, instead of teaching in preparation for entering into a specific job skill as is necessary in vocational education. Vocational education through the area vocational technical schools do, and certainly should, serve the needs of those students who have special interests and abilities.

Industrial arts course work could well, and probably should, precede most industrial vocational training. In fact, this guidance value is stressed considerably by the American Vocational Association personnel in Washington and also by the supervisor of Trade and Industrial Education for the State of Kansas.

Our schools will need to reflect the educational adjustment necessary as Kansas switches from an agricultural to an industrial economy. Therefore, industrial arts courses have an obligation to our rural youth. Technological advances have made it possible for fewer and fewer people to produce the food and fiber of the nation. This results in boys with an agricultural background and training leaving the farms and small towns to emigrate to the industrial centers to earn a livelihood. This everyone is certainly aware of. These boys need an industrial oriented education before they leave the rural community so that their adjustment to industrial life will be easier. More of the industrial arts facilities in Kansas must be revamped and expanded to offer exploratory skills and understanding in the major industries centered around woodworking, drafting, metalwork, electricity-electronics, power mechanics, plastics, ceramics and graphic arts. With proper planning this can quite well be accomplished through school unification during the next several years. In many schools a trend in this direction has been made by combining vocational agriculture shop facilities with the industrial arts facilities. This is being proposed for the unified school district No. 417 at Council Grove, Kansas.

General Layout

The main shop area and facilities need to be flexible so as to be able to adapt to changes in technology without major remodeling. We have provided a suggestive design following this trend. This design eliminates all partition walls between the major shop areas. This has proven very successful in recently built facilities. The advantages are many. First, we eliminate the costly item of equipment duplication necessary in separate shops. Second, we are able to provide an adequate facility with considerably less space than could be accomplished with individual unit shops, since we are using the one major facility as a general shop; while in addition, at other times as unit shops in woodwork, metalwork, power mechanics, and vocational agriculture. And finally, we provide our students with a much better understanding of the total curriculum relationship to each other as we tie these physical facilities together.

The following additional suggestions should be helpful in planning this portion of the facility.

A fresh air intake unit should be provided. This should have a heating device to preheat the replacement air which is necessary with the various exhaust system necessary in this shop.

Proposed Curricular Offering

Industrial Arts

1. General Shop I and II
    - Foundry
    - Sheetmetal
    - Welding
    - Machine Shop
    - Woodworking
    - Printing
    - Plastics
    - Photography
    - Drafting
    - Electricity
    - Power Mechanics

2. Power Mechanics I and II
3. Electricity I and II
4. Woodworking I and II
5. Drafting I and II
6. Metalwork I and II

Vocational Agriculture

1. Vocational Agriculture I, II, III, and IV

Vocational Agriculture

The students of vocational agriculture will consist of day school and adult farmer classes. Wives will attend classes pertaining to record book accounts, insurance and other topics of mutual interest.

Much of the classroom lessons will take up the business of farming and agrilated subjects. There is need for areas to demonstrate, layout items for identification, and participation learning. This involves many teaching aids and thus a need for classroom storage as well as a laboratory.

In the shop basic skills are taught beginners, and later the advanced skills of concrete, farm building construction, farm electrification and plumbing, use of farm level, farm machinery adjustment and repair, farm power, fencing, and project construction of various scope.

As vocational agriculture I, II, III, and IV classes are being taught, and night classes anticipated, it is assumed that the classroom and shop area will be in use much of the time. Vocational agriculture II is a two hour class. It is anticipated that the largest classes will consist of 20 students. This teaching load is for one teacher unless the number of day students reaches 55, then it is recommended that a two teacher department be established. FFA Chapter meetings are held twice a month which includes most of the agricultural students.

It would be best if the vocational agriculture area was at one end of the building with the classroom, office, shop, storage, and locker room blending in with each other to form an efficient teaching situation with the metals and power mechanics areas sharing such equipment as metal lathes, engine repair tools, electric welders, milling tools, forge, etc. A steam and paint room could be shared by the vocational agriculture and power mechanics departments.

A large 14' door with a small entrance nearby would provide entrance of machinery into the shop. A paved area with a southern exposure if possible would permit outside work on some days. Welder outlets and 120 volt outlets should be located in this paved area and floodlights should be provided. A storage area for hardware, construction iron and lumber, paint, electrodes, solvent and many other consumable supplies should be adjacent to the shop and also easily accessible by truck, perhaps from the outside. Pipe lengths are often 20' to 25' in length. The shop should have a length to width ratio of not more than two to one, and a minimum of 250 sq. ft. of floor space for each student. The bottom of windows, if provided, should be at least six feet from the floor. Welding outlets should be strategically located about the shop in order for projects to be reached by the welder. Gas lines should be run to the forge area and steam and paint room. The air compressor needs to be located on the floor level with air lines running to all shop areas within the building. Adequate wiring from overhead and along the walls should be provided in all areas. An exhaust system to remove the heat in the hot area and welding fumes should be installed.

The office, classroom, and shop should be arranged so that the instructor can supervise all areas. Large glass areas in partition walls would aid in doing this. The locker area or room should be adjacent to the shop and equipped with a sink, stool, and urinals. A restroom near the office and classroom should be provided for the young farmer wives and guests. A display case should be provided in the entering corridor from the rest of the building. This should serve vocational agriculture as well as all industrial arts areas.

Classroom storage along one wall and a separate room for shelving of teaching aids as crop samples, charts, laboratory equipment, etc. is needed. The classroom needs to be equipped to control the light for the use of filmstrips and with a screen mounted and slanted for overhead projectors.

The classroom should be located in such an area to eliminate as much shop and outside noise as possible. The classroom should have a minimum of 40 sq. ft. per student for a class of 17 or 18 and a minimum width of 24'. The office needs a minimum of 150 sq. ft. with a closet. A parking area with flood lighting should be provided.

Woodworking Area

It is anticipated that 24 students will use this area at one time. A figure of 100 sq. ft. per student is generally used to determine adequate space requirements for this shop area. This is based on an average class of 24 students or a total of 2400 sq. ft. The storage room for projects should accommodate 30 sq. ft. per student for a floor space of 660 sq. ft. The finish room, which is 30% of the work area space, would be 660 sq. ft. also. The assembly area would consist of 10% of the work area or 240 sq. ft. The balcony area would in part be used for storage. This will require a reinforced concrete deck.

The paint room should be dust free, a ventilating fan should be installed to draw off paint fumes. A spray booth should be provided, equipped with an exhaust fan. A dust collecting system to draw off shavings and dust from the woodworking machines should be installed. There should be several "tap-ins" for flexible tubing, thus providing easy vacuum service for the shop.

The electrical outlets should be 115 volt and 230 volt single phase and 230 volt three phase. The receptacles should be along the walls and provide all three voltages. Ceiling drop cords are recommended for the work area. This would eliminate all floor outlets.

Tool cabinets should be located close to the work areas.

The wash basin should be foot-operated, half-moon shaped, and set on concrete. Chalkboards and bulletin boards should be mounted.

Compressed air outlets should be in all areas as well as the finish room, with the compressor at floor level or lower.

A refrigerated water cooler should be provided.

Drafting Room

It is recommended that each student should have from 50 to 75 sq. ft. of floor space for a total of 1350 sq. ft. Built-in storage with counter top and built-in sink should be provided.

The lighting should be fluorescent with 100 foot-candle light on the drafting tables. Chalkboards, tackboards, overhead projector with plug-in on teacher's desk, and a bulletin board should be provided. A permanently mounted projection screen (6' x 6') with provisions for tilt should be provided so as to be usable with the overhead projector as well as stripfilm and 16 mm projection.

Auto Mechanics

It is recommended that the size of this area should be 2400 sq. ft. which would include a paint room and storage room. A twin post automobile lift should be installed.

The electrical outlets should be 115 volt and 230 volt single phase and 230 volt three phase circuits. These receptacles should be distributed about the room at 10' intervals. Compressed air should be piped to the area. A floor exhaust system is recommended for running engines. An exhaust system should also be installed in the work area and also in the paint and steam room which would be shared by the vocational agriculture area. Steam should be provided in this room which would accommodate cars and farm machinery.

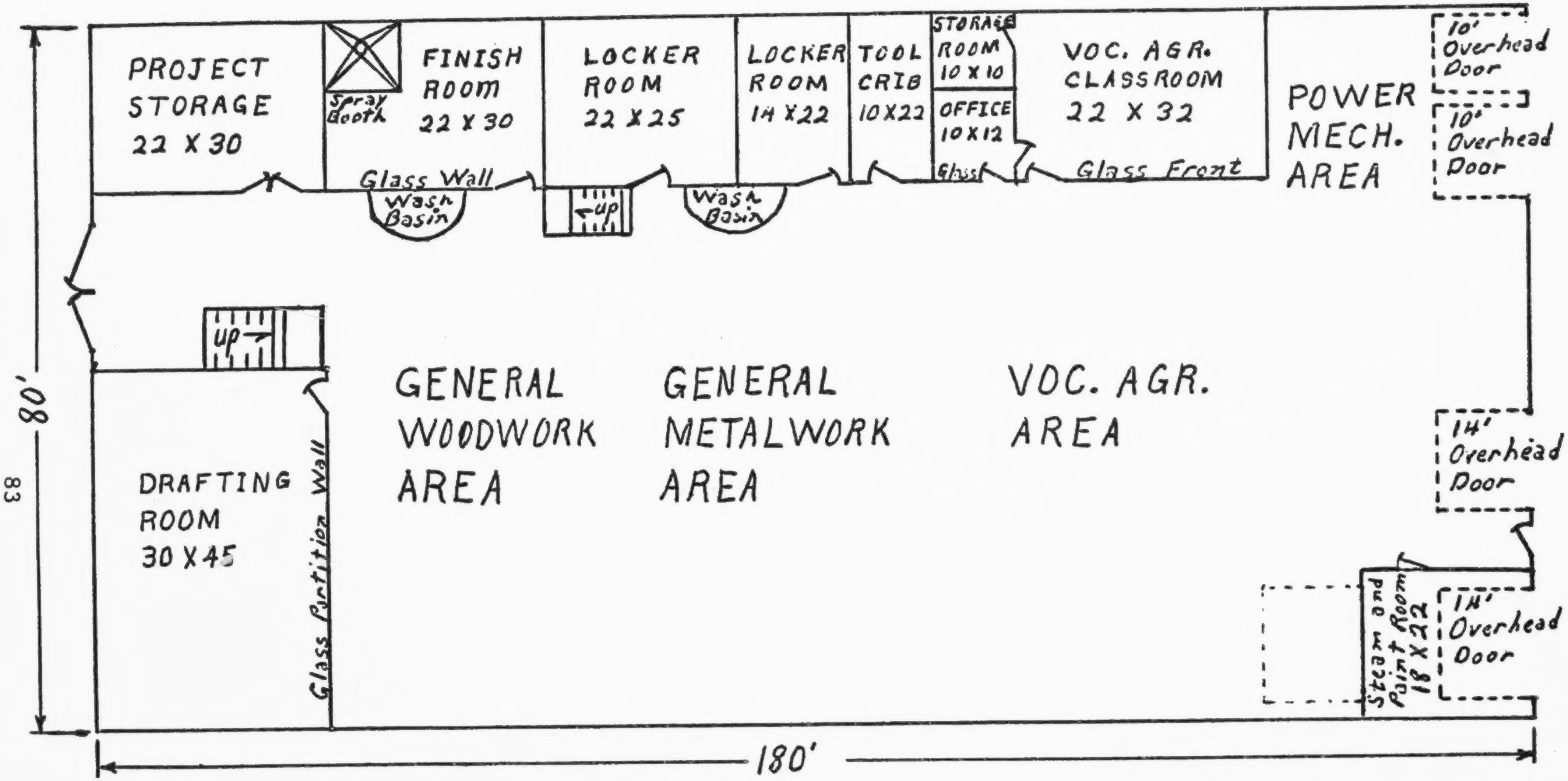
For tool storage, a tool crib would be used along with tool cabinets in the work area.

General Metals Area

It is recommended that each student have 100 sq. ft. of floor space, or a total of 2400 sq. ft. The hot metals area should be a compact unit with a hood to carry off the fumes and gasses.

The soldering bench should be covered with asbestos and be equipped with a gas outlet at each work station.

Electrical outlets of 115 volt and 230 volt single phase and 230 volt three phase should be provided every 10' along the wall. There should be an overhead conduit system so outlets can be arranged from the ceilling. The overhead system should be supplemented by a series of outlets located at convenient intervals along the walls.



I. Square feet in main floor -- 14400
Square feet in balcony ----- 4842
TOTAL - 19,242

II. Ceiling height -- 16 feet.

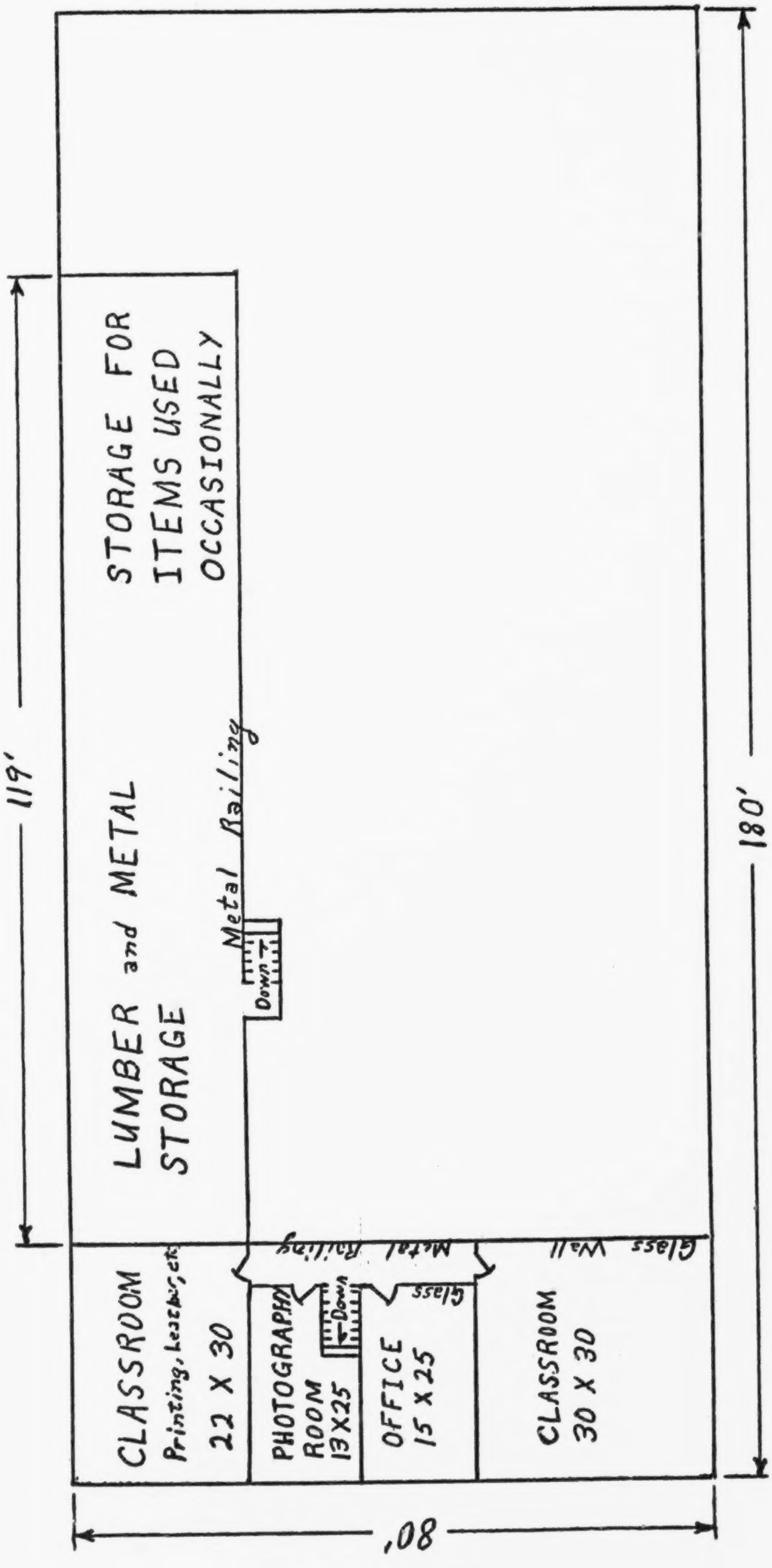
III. Concrete floor throught-out.
  A. Tile on concrete in classrooms.

IV. Fluoresent lighting .
  A. 40-50 ft. candle light at bench top.
  B. 100 ft. candle light at desk top in the drafting room.

V. Keep windows high off the floor.(6 ft. minimum)
  A. Use skylights and artifical lighting.

VI. Heat in the floor. (Especially in the Vo. Ag. and Automotive Area)

VII. The right end of building should be paved for parking and work areas. One side of the building should be paved and fenced in for storage.



BALCONY
SQ. FT. 4,842

PHYSICAL EDUCATION -- INDOOR AND OUTDOOR

Specific Objectives

In facing situations of everyday living, students need to develop competencies and capacties to maintain good health, to solve problems by reflective thinking, to make moral choices, to express themselves emotionally by wholesome ideals, tastes, attitudes, and appreciations. They have to deal with other persons individually in face-to-face relations and through social participation in groups. Finally, social development is enhanced by intergroup relations as exemplified by school club federations, athletic team contests, and the like.

The physical education teacher satisfies the needs of the students by means of physical activities. While the mathematics teacher is especially sensitive to the need of students to be able to think quantitatively and to solve problems by mathematical formulas, the physical education teacher is especially sensitive to and contributes to the achievement of the following developmental goals which lead to the ultimate goal of "Total Fitness." These we might call more immediate or specific objectives:

1. Organic power, the ability to maintain adaptive effort or the ability to meet the physiological demands made upon the organism. (We attempt to strengthen muscles, develop the ability to resist fatigue and increase cardiovascular efficiency.)
2. Neuromuscular development. (We attempt to develop game and sports skills, grace, a sense of rhythm, and improved reaction time.)
3. Personal-social attitudes and adjustment. (We attempt to place students in situations that encourage individual self-confidence, sociability, initiative, self-direction, and a feeling of belonging.)
4. Interpretive and intellectual development. (We encourage pupils to approach their problems with active imagination and originality to develop ability to solve these problems by thinking, analyzing, abstracting, and coming to conclusions based on sound evidence.
5. Emotional responsiveness. (Pupils get emotional satisfaction and pleasure out of overcoming difficult challenges such as learning to swim or to create a new dance pattern. They get a thrill out of cooperative success or teamwork through developing great loyalty to the school or team, or developing aesthetic tastes from experiences in the dance or ballet.)

Every aspect of development-physical, social, emotional, intellectual -- interacts with the other.

PHYSICAL EDUCATION -- INDOOR FACILITIES

We have planned the indoor facilities keeping in mind the following: space requirements of the school and community for physical education, athletics, and recreation, and translating these needs into the number, size, type and location of facilities.

To handle the 10 sections with 25 students per section most efficiently and effectively, keeping in mind the other uses and requirements of this area, the following 22 rooms are necessary

Room No. 1 - Gym with loft
2 - Health classroom
3 - Adaptive physical education room
4 - Swimming pool
5 - Girls' dressing room
6 - Boys' dressing room
7 - Varsity locker room (football)
8 - Varsity locker room (basketball)
9 - Training room
10 - Women's physical education instructor office
11 - Men's physical education instructor office
12 - Coaches' office
13 - Officials' office
14 - Physical education equipment storage
15 - Athletic equipment storage
16 - Girls' physical education storage
17 - Boys' physical education storage
18 - Custodial room (equipment)
19 - Laundry room
20 - Public women's and men's restrooms
21 - Concession booth
22 - Ticket booth

Gym with Loft

In planning the gymnasium in a school, the immediate concern should be the provision of needed teaching stations. (The term "teaching station" is used to mean any room or space where one person can teach one class or group of pupils.) Spectator space folding-type seating makes possible the full utilization of all floor space for instruction-recreation areas. Folding bleachers should be recessed if feasible. If not recessed, the depth of the folding bleachers should be added to the overall dimensions. No structural supports should be in front of bleachers. Seating calculations should be made on the basis of 18" per seat and it should seat 2000 spectators.

When the bleachers are unfolded, the inside gymnasium measurements must be sufficient for a regulation basketball court with end and side safety zone of 10'. When the bleachers are folded, the play area should be sufficient to have two full-sized basketball courts, the space will provide for other standard court games such as volleyball, badminton, and deck tennis. The use of colored pegs in the floor will designate the line markings for games other than basketball. Floor plates must be provided for standards and for apparatus on the main floor as well as in the loft.

The gymnasium floor and the loft should be made of hard maple. The gym floor should be a floating floor provisions for termite shields. For safety purposes, a non-slip surface such as rolled rubber stripping should be placed on the floor where spectators walk.

The walls of the gymnasium should be of a material that is resistant to hard use to at least door height. The finish should be resistant to marking and scarring as well as smooth non-abrasive surface. All corners below door height should be rounded and there should be no projections into playing area.

Folding Partitions: Make possible two or more teaching stations in the gymnasium. They should be insulated against sound transmission. Such partitions should extend from floor to ceiling and may be recessed when closed. Floor tracks should not be used but a pass door should be provided in the partition.

Fixed Equipment: All six glass basketball backstops will need special care in their installation to insure rigidity and safety. All basketball backstops should be attached to ceiling or walls, and they should swing up or fold-up type where they cannot interfere with other activities. In the interest of safety, suspension apparatus such as bars, rings, and climbing ropes should be placed so they have sufficient clearance, both on the main floor and the top loft. Wherever necessary, floor plates should be installed for fastening movable equipment such as horizontal bars and volleyball standards.

Lighting: All sources of natural light should be kept as high off the floor as possible. Care should be taken to eliminate glare - glare type artificial lighting should be provided and designed to eliminate shadows. A minimum of 30 foot-candles of light intensity should be provided. Provisions should also be made for dimming lights when the gymnasium is used for social, recreational, and other school and community functions. In recreation areas where balls are used, it is necessary to protect lighting units by guards or transparent, non-breakable plastic coverings. All lighting fixtures should be arranged for cable lowering to permit relamping without ladders.

Electrical Installations: Provisions should be made for the installation of: electric scoreboards, a central sound system and public address system, radio, television, high-fidelity equipment, cleaning machines, and clocks. Wall outlets should be installed near cupped eyes to permit special lighting as needed. Controls for gymnasium lighting should be conveniently located, recessed, and keyed. A secondary control panel should be planned for the convenient use of persons who open or close the facility during hours of darkness or outside of regular school hours. Electric lighting and power should be fully available to all athletics, physical education, and recreation facilities during hours when the main building may be closed off.

Heating, Ventilation and Air Conditioning: The selection of the types of heating, ventilation, and air conditioning system should be made with special consideration for economy of operation, flexibility of control, quietness of operation, and capacity for providing desirable termal and atmospheric conditions. Due to the fact that the number of occupants in the gymnasium will vary special consideration should be given to variable controls to accommodate for minimum and maximum occupancies.

Adequate temperature controls are essential to maintain desirable conditions. Individual room control would be more desirable and efficient than zone controls, and automatic controls superior to manual control. Thermostats in spaces occupied by pupils, teachers, and the public should be of the locking type. Thermostats used in gymnasiums, recreation centers, or any area where instruments are subject to mechanical damage should be provided with guards. There is a growing trend toward providing air conditioning which will ensure a comfortable and stimulating educational and recreational environment for children and adults in recreation building, gymnasiums, and similar buildings during warm weather.

Cleaning outlets should be provided if such a cleaning system is to be used.

Location: The gymnasium should be planned so that it will be readily accessible from the rest of the plant and from outdoor playing fields and areas. It should also have a convenient public entrance in order that it may be used for community activities without the necessity of opening the entire school building. A parking lot or area must also be provided.

Health Classroom No. 2

The health room will be used by the physical education classes for health classes including first aid and safety instruction. Also for the showing of films both for the classes and for the varsity. In view of the uses of this room, it should be adjacent to the gymnasium.

The basic space allotment for the health instruction facilities should be in harmony with generally accepted standards for school room size. However, due to the nature of health and safety instruction programs, it is recommended that the space allowed for such instruction be increased approximately 35% above requirements for the regular classroom, placing the space requirements on a par with those of a science classroom.

The space allotment should be sufficient to allow for such activities as vision and hearing screening tests, first-aid and safety instruction, and including practical demonstrations. This indicates the need for a laboratory-demonstration type of desk which will provide space and facilities for demonstrations as well as storage space for heating devices, test tubes, flasks, and other equipment essential to such demonstrations. It is recommended that the laboratory desk be at the opposite end of the room from the traditional, and first, teacher desk.

In order to provide for best use of this room for health instruction, and by others who may use it, there should be flexibility of seating to allow for use of alternate desks and various teaching methods, as well as to make floor space available for practical instruction and practice in activities such as artificial respiration.

The suggested laboratory method of teaching will require that there be adequate storage space and/or display areas for charts, mannequins, models, apparatus, a roll-away bed such as would be essential to home-nursing instruction, pans and containers, sheets, blankets, bandages, splints, a stretcher, and other health, first-aid, and safety teaching supplies and equipment. There should be provision for hot and cold running water in the laboratory desk, hand-washing facilities and constant temperature chambers essential in certain experiments.

There should be adequate display space for educational exhibits, literature, and pupil projects. This can be provided by allowing space for tables, shelves, and tackboards to be used for this purpose.

The health-instruction laboratory should provide for the optimum use of such additional audio-visual devices as still pictures, slides, motion pictures, radio, and television. This will necessitate a liberal allowance of electrical outlets, appropriately located, shades or curtains which will reduce outside light, and screen which may be mounted above the blackboard behind the laboratory desk.

Acoustical Treatment: The gymnasium should be carefully designed acoustically. Activities are often very noisy. Noise transmissions should be kept at a minimum. Control of noise helps the instructor during the teaching of P.E.

Color: The selection of colors for the gymnasium should receive very careful consideration. Colors will vary under daylight and with different types of artificial light. The gymnasium should have a cheerful and friendly atmosphere in which youths and adults will work and play. Studies have shown that psychological response of children to color and its use defintely affect their attitudes and work habits in school. The trend toward the use of bright colors is most appropriate in planning gymnasiums. Non-gloss or matte finishes should be used. In general, walls should be darker than ceilings, and splashes of color in a large area such as a gymnasium add interest and variety.

Drinking Fountains: Drinking fountains should be in separate recesses near a corner of the gymnasium and accessible when bleachers are in open position. Each fountain should be of vitreous china equipped with one sanitary type bubbler head. The orifice should be above the rim of the bowl and should be of a type to prevent the mouth from coming in contact with the nozzle and to prevent water from falling back on the nozzle. It may also be desirable to provide a drained catch-basin, grilled flush with floor to care for splash and overflow. They should be located at each end and on either side of the gymnasium; also they may be located adjacent to the entrance of the gymnasium or in the foyer.

Foyers: As finances and space will allow, foyers should be placed so they will serve as entries to gymnasiums and will guide spectators as directly as possible to seating areas. Toilet facilities for men and women, ticket sales window, ticket-collection arrangements, checkrooms, public telephones, a refreshment-dispensing room with counter and lockable display cases should be provided with openings directly to the foyer. Floors should be of a type that will withstand heavy traffic and some moisture. It is appropriate to create pleasing appearances in foyers through the use of special building materials, colors, lighting and other means.

Traffic Controls: Good traffic control should permit efficient movement of pupils to and from the gymnasium, locker rooms and other related service areas. Traffic planning should also include provisions for controlled movement of spectators. All traffic arrangements for spectators should provide direct movement to and from bleachers with a minimum of walking on gymnasium floors. Spectators should have access to drinking fountains, refreshments, and toilets.

Exits: Exits should be located so at least one exit will be within 100' of a doorway of every room designed for occupancy and should be marked according to builder code. Exits should be located for conveniences of egress as well as for safety. All doors should open in the direction of exit and should either swing into a recess or should swing 180 degrees. Outside exits should be provided with some means of cleaning mud off shoes.

Miscellaneous: Cupped eyes should be installed in all walls at approximately 15' and at 10' intervals for decorating convenience. They may also be used for attaching mats and other equipment to walls at appropriate heights.

Bulletin and chalkboards should be provided in places where needed. If wall space is available, such boards may be located in the gymnasium for each teaching station.

The health room should be an example of the ideal classroom environment, with special concern for color of walls, lighting, ventilation, temperature and humidity control, order and cleanliness.

In general, walls should be darker than ceilings. Reasonable variation in color combination from room to room and in corridors add to the attractiveness of the entire unit. Also the directional location of the room would have to be known before choosing a color. It is recognized that the reds and oranges are associated with warmth and are generally used in rooms on the north. The colors of blue and green lend a coolness to rooms with the most sunlight. The trend toward the use of bright colors would be most appropriate in the final selection of the color for the health classroom.

It is recommended that classrooms maintain 50 foot-candles at working plane.

All exhaust ducts should be designed and sized to prevent noise and to insure an even flow and distribution of air in accordance with recognized standards in heating, ventilating, and air conditioning. Adequate temperature controls are essential to maintain desirable conditions. Individual room controls would be required.

Adaptive Physical Education, Room No. 3

The adaptive room will be used for a great variety of things, they are: wrestling; weights; handball; game room; music, dance, and rhythms. If it is located at the end of the basketball court opposite the foyer, it should be equipped with folding or sliding doors. It can then be used for additional seating space for the spectators, place for the pep band, or during 'Queen of Courts', a place of honor and safety of location for the royalty.

In fiew of its many functions it cannot have windows. It must have at least one wall of mirrors for dance. They must either be the folding type or else they must be protected by a screen or similar type of protection. It must be equipped with safe storage space for the record player and records and other recreational supplies. Experience has proved the need for a multiple-use activities room of approximately 30' x 64' in size.

The adaptive room has the same concern for color of walls, lights, ventilation, temperature and humidity control, order, and cleanliness as the health room. With one exception, that being lighting. The adaptive room has a recommended light intensity of 50 foot-candles, four feet above the floor.

Swimming Pool, No. 4

Swimming, with its variety of related activities, has long been recognized by educational leaders for its contribution to physical development, enjoyment, health, recreation, social growth and self-reliance. Undoubtedly, the greatest single motiviation for swimming is the fun or enjoyment factor. The ability to swim is a basic requirement to military service. Furthermore, knowing how to swim opens the door to many other aquatic activities such as boating, sailing, canoeing, fishing, water skiing, and skin diving.

General Use: The swimming pool represents a facility in which a variety of activities may be conducted. Activities which are generally carried on in pools include: instruction in aquatic activity; diving; water safety and survival swimming; recreational swimming; rehabilitation and special exercises; synchronized swimming; demonstrations, shows, and pageantry; competitive swimming; and water polo.

Location: The pool must have easy access to a supply of pure water, sewer facilities to permit ready emptying of the pool and adjacent to the boys' and girls' dressing rooms.

Design: The pool should provide six - 7' lanes and perpendicular turning walls at the ends. The recommended length for indoor pools is 75'1". This represents the official interscholastic, intercollegiate, and A.A.U. indoor course. The one-meter board requires a minimum depth of 10'; the three-meter board requires a minimum depth of 12'.

L-shaped pools are rectangular but provide an additional section at one end. Among the advantages of the L pools are: divers are separated from swimmers, thus reducing the danger of accidents; the shallow area is more extensive, thus serving more people; they can be constructed so that races can be in meters in one direction and yards in the other; the deep area provides an ideal layout for water-polo competion.

Construction Materials: The advice of a competent architect or engineer and the experience of pool operators regarding capital outlay, maintenance and operating costs, life expectancy, and environmental factors should be given careful consideration before the final decision is made on construction materials.

Equipment: The following equipment should be provided: a vacuum cleaner, ladders, starting blocks, surface-line buoys, a water-testing kit, a shepherd's crook, a bulletin board, spotlights, deck benches, and a pool brush. Equipment items which should be built-in are cuspidor, drinking fountain, permanent ladders, surface-line buoy holders, life-line holders, hot and cold water hose bibbs, public-address outlets, and a telephone jack. All of these built-in items should be recessed in the walls of the pool basin or pool room, or in the decks. Provision should be made for wiring and appropriate electrical outlets for the use of spotlights for special events. Diving boards may be of three types, all of which are official: wood with cocoamat tred; aluminum or stainless steel; and wood covered with fiberglass.

Engineering Service: Many of the most difficult problems in designing and planning the pool fall in the realm of engineering. Heating and ventilation, humidity control, acoustics, illumination, plumbing, and electrical systems are of paramount importance in achieving an efficient natatorium. The availability of competent engineers to work with the architect is of prime consideration. Merely competence in architectural design will not suffice to solve many of the specific problems. Each requires a specialist who will give attention to the requirements of this particular type of structure. We, the committee, do not feel that we are specialists in this realm of engineering and will leave it up to those who are specialists in that particular field.

Traffic Control: The guiding principle in traffic control is that of separation of wet and dry traffic. The admission of swimmers to the pool deck should be restricted to a route from the locker room to the toilet, suit room, and shower. Outsiders should be provided a special entrance conveniently located both inside and outside the pool area.

Dressing Rooms, Nos. 5, 6, 7 and 8

The dressing rooms should be directly accessible from the main gymnasium, and close to the swimming pool so as to use the shower before going directly into the pool area. Dressing rooms should also be located and designed so that persons outside cannot see into them.

Floors: Floors should be of impervious materials, such as ceramic or quarry tile, with a non-slip surface and properly sloped toward drains. Concrete floors (non-slip surface), if used should be treated with a hardener to prevent the penetration of odors and moisture.

Walls: Walls should be of materials resistant to moisture absorption, with smooth, easily cleaned surfaces. All external corners should be rounded. Heavy-duty solid-core doors treated to resist moisture should be installed. They should be of adequate size to handle a heavy flow of traffic and so arranged as to form natural sight barriers if possible.

Windows: Windows should be operable. The window-stool height should be sufficient to clear the tops of the lockers. Windows should be glazed with obscure glass. Window frames should be bonderized or galvanized.

Ceilings: Ceilings should be treated acoustically with a material impervious to moisture. Dressing and locker rooms should be well lighted. Moisture proof light fixtures should be installed. Wall outlets should be placed a minimum of three feet above the floor. Radiant floor heating is recommended because of its value for dry floors, foot comfort and elimination of drafts.

Lockers: Lockers for the girls' and boys' physical education classes are needed for all pupils who will use the central dressing room. Storage lockers should be provided for physical education clothing and dressing lockers for street clothing. The number of storage lockers should be equal to the total enrollment, plus ten percent to allow for expansion. They should be metal and each locker should be provided with a combination lock. To keep the physical education clothes in or their valuables when taking physical education, an 18 compartment unit provides three times as much storage space as a gym basket - no handling or replacement problems. Each compartment is the open screen type, 18" wide, 16" deep and 12" high. Dressing lockers should be large enough to accommodate street clothing. The number should be equal to the peak-period load, plus ten percent to allow for variation in class size, scheduling and the intramural as well as some interscholastic athletic participation. Recommended sizes 12" x 12" x 54".

Lockers in the varsity rooms must be full length, 3 locker units, 18" wide, 16" deep, 72" high with shelf and garment hooks. They will be the open screen type with forced air ventilation. There should be a 4" ventilation space between lockers when they are placed back-to-back. The same space should be provided between the back of lockers and walls.

Benches: Benches should be secured to the floor. A seat board of hardwood at least 8" in width, surfaced on four sides, with rounded edges and corners is essential. The height of the bench should be 16" from the floor.

Space relation of locker to bench and bench to bench should be planned for traffic control and dressing comfort. Recommended allowances are 30" from lockers to bench, 8" for bench width, and a 30" passage between benches. Benches should extent the full length of each locker bank with traffic breaks at intervals of about 12'.

Mirrors: Mirrors should be installed in both boys' and girls' dressing rooms. The location, number and size will depend upon the arrangement of lockers and wall space. The mirrors should be encased in non-corrosive metal frames and permanently mounted on the walls. Shelves beneath the mirrors are an added convenience. Alcoves approximately 12' x 8', equipped with mirrors and ample shelving, are more suitable for girls. A full-length mirror is recommended near the main exit. Facial tissue dispensers are recommended in girls' rooms.

Sufficient hair dryers conveniently located are recommended for girls' dressing rooms. Recessed-type drinking fountains should also be placed in these rooms. Cuspidors may be desirable for boys. A small section of bulletin board and chalkboard may be installed in each dressing room at appropriate locations.

Shower Rooms: The shower room should be directly accessible to the toweling room and the dressing room which it serves. Also, since we have a pool, the shower room should be located so that pupils must pass through the shower prior to entering the pool. The entrance should lead directly to the pool deck.

Type: All showers for boys should be of the group type and the shower head should be 6'. For girls, approximately 90 percent of the showers should be group type and 10 percent individual showers, all shower heads should be 5'.

Adequate shower facilities consist of not less than one shower head for each four persons at the peak-period load. Temperature controls are necessary to keep water from exceeding 120 degrees F., controlled by means of a mixing chamber rather than by individual control.

A soap dispenser, preferably liquid-type, should be placed at valve heights between every other shower head. It should be sufficient to hold a 3-day supply.

Toweling Room: Toweling rooms should have about the same total floor area as the shower room and should be immediately accessible to both showers and dressing room through an entrance to each. Floors and walls will be the same as in the shower room. Heavy-duty towel rails, approximately 4' from the floor and securely fastened to the wall. A ledge 18" high and 8" wide, and of the same materials as the walls, covered at wall and base with bull-nose edge, is desirable as a foot-drying aid.

Training Room, No. 9

Location of the training is very important. It must be adjacent to the athletic dressing rooms.

Equipment necessary for a functional training room:

1. Training or taping table - at least on table for every twenty athletes.

2. Treatment cabinet - should have adequate working surface at a convenient height to hold supplies necessary to administer first-aid for cuts and abrasions - it should also be lockable.

3. Infra-red head lamp - very adequate as a source of penetrating heat. It can be operated with a minimum of training, and can be moved from place to place very easily.

4. Whirlpool bath - the single most expensive item of the training room equipment and probably the most useful.

5. Supply cabinet - used for the storage of trainers tape and other supplies. It is important that such storage space be equipped with a lock to prevent waste of such materials.

6. Electric refrigerator - an essential in the training room to maintain a readily available supply of ice for the reduction of swelling.

7. Scale - a necessity if the trainer is to keep adequate records of a boy's weight and height.

8. Sink - should contain two basins if possible. One for hot towels, the other for washing hands.

9. Desk and chair - the trainer must have a work area immediately available to him for his correspondence and record keeping. A small file cabinet can also be included under the category.

Other features of the training room such as floors, walls, windows, and ceiling will be treated similar to those in the dressing room. For further detail refer to the dressing rooms Nos. 5-8.

Recommended light intensity for training room is 20-30 maintained foot-candles at working plane. General lighting should be controlled by a switch located on the knob side of entrance doors. There must also be sufficient electrical equipment.

Heating, ventilation, humidity control, and air conditioning should meet the standards set by the latest edition of the Heating, Ventilating, and Air Conditioning Guide which is published by the American Society of Heating and Ventilating Engineers, 51 Madison Avenue, New York 10, New York.

Room Nos. 10, 11, 12 and 13

In order that men and women staff members can perform their functions most effectively, each should have certain facilities. These include office space with proper furnishings, a conference room, dressing room, shower, toilet, locker and moderate storage space.

The officials should be provided with a similar space with the exception of the office.

If individual offices are provided, they should be approximately 120 sq.ft. in size. For group offices, such as the coaches, 80 sq.ft. should be added for each additional person. Offices should be as accessible as possible to existing teaching stations. They should be equipped with furnishings normally found in school offices. Being sure to include a locking file cabinet in each.

Care must also be taken to see that they are properly illuminated; heated, ventilated and air conditioned; plumbing and electrical outlets must not be overlooked. The light wood finish and pastel color of the offices should be in harmony with the carpet and also with the other rooms.

Room Nos. 14, 15, 16, 17 and 18

This room should be on the gymnasium level and directly accessible to the gymnasium. The minimum area needed for the storage of apparatus, mats, standards, and other equipment is 400 sq.ft. Appropriate cabinets, drawers, hangers, and adjustable shelves are important items for good storage. The door opening should be at least 6' wide and have a flush threshold. The doors should have heavy-duty hardware. Care must be taken to keep this room properly heated, ventilated and the humidity controlled for the best service and longest life of the equipment. The light switch should be readily accessible from the doorway.

Athletic Equipment Storage. This room should be located so it is readily accessible to the team rooms. It must have sufficient storage for all material indoors and outdoors. This room will have sufficient space for the storage of all non-seasonal, new and reserve athletic equipment and supplies. Appropriate cabinets, drawers, hangers and adjustable shelves are important for good storage. Metal hooks and hangers should be furnished and so arranged as to permit air circulation through the garments; also perforated metal shelving. It is very important that this room be properly heated, ventilated and humidity controlled. The light control switch should be readily accessible from the doorway.

Girls' and Boys' Physical Education Storage. Small storage rooms adjacent to each of the boys' and girls' dressing rooms should be provided. These will be used to store small items of equipment common to that department and also those being used daily for your particular unit of work. The storage rooms should be properly heated and ventilated.

Custodial Room. Custodial rooms of sufficient size to house the equipment and supplies are needed for servicing the physical education and recreation facilities. They should be located in or immediately adjacent to such areas. Recessed wall shelving and cabinet storage should be provided for tools, supplies, and equipment. This space should also contain hot and cold running water, a slop sink, a lavatory, a water closet and a clothes closet. This room should have sufficient base and wall outlets to service both workbench space and power equipment. For further details, the custodians should be consulted.

Laundry Room, Room No. 19

Laundry facilities will be dependent upon school policy. If there is a general school laundry, the particular needs of physical education and athletic groups may be met by this service. If special laundry facilities are installed for physical education and athletics, it is essential that they comply with local public health regulations. In the latter case, the laundry should be located close to the area which it serves. It should be of sufficient size to accommodate the equipment and personnel needed for the service it renders.

Toilets, Room No. 20

Toilet facilities must be provided in the following places: girls' dressing room; boys' dressing room; team and community dressing rooms; in the offices of the instructors, coaches and officials; and conveniently available to foyer and gymnasium.

The men's restroom should be provided with at least three water closets, six urinals and three lavatories. The women's restroom should have at least six water closets and three lavatories.

Lavatories: Lavatories should be provided in each toilet room and each locker-and-dressing room. The type selected should be of vitreous china with backs and aprons. Floor supported types often overcome maintenance problems. Hot water is desirable but a stopper is of little use in school and public toilets. Mounting heights of lavatories should be 30" to 36" to top of basin for adult use.

Water Closets: Water closets should be of vitreous china of the extended lip or elongated bowl type equipped with impervious open-front seats. Individual flush valves, located about 36" above the floor, are recommended. Fixtures for adults should be about 15" in height.

Urinals: Urinals constructed of vitreous china should be provided in each men's toilet room and should be equipped with a hand-operated or automatic flushing device. Floor-type urinals should be flush with the floor and pitched to drain toward urinals. The lip height of wall-hung urinals should not exceed 18" for high school age children. The use of trough urinals is not recommended.

Accessories: The following accessories should be provided in toilet rooms: (1) soap dispensers convenient to each lavatory; (2) toilet-paper dispensers for folded or roll paper (roll-paper dispensers should limit the amount of paper that can be removed at each operation); (3) mirrors located so as not to interfere with the use of lavatories or reflect the interior view into corridors; (4) a shelf for personal items while using basins and water closets; (5) appropriately located hooks for hanging garments; (6) paper-towel dispensers or electric dryers; and (7) in women's restrooms, provisions for sanitary napkins.

Concession Booth, Room No. 21

The concession booth should be planned carefully keeping in mind spectator traffic and easily accessible to the gymnasium. Sufficient space should be provided for the necessary equipment and for several workers. A serving counter with a movable panel is desirable. Equipment should include cabinets, a sink with hot and cold water, a coffee-maker, a stove, a refrigerator, and shelving for equipment and supplies. Electrical outlets should be conveniently placed. Mechanical ventilation and heating is important.

Ticket Booth, Room No. 22

Permanent ticket booths should be a part of the lobby design. The main lobby should be large enough to accommodate anticipated crowds seeking tickets. The lobby should be designed for ticket sales and collection so that the traffic will flow in a straight line, or nearly so, from entrances to box offices to ticket collectors.

They should be adequate in size and flush with the wall to facilitate crowd movement and for protection. The open ticket-window area should be relatively small to afford the greatest protection to fund handlers.

PHYSICAL EDUCATION -- OUTDOOR FACILITIES

The outdoor facilities required for schools include areas for intramural sports, interschool athletics, other recreation activities and outdoor education.

To meet the health education and recreation needs of a school, a wide variety of facilities and equipment will be necessary. The following should be included: multiple (use paved area), field games area, court games area and track.

More specifically we need:

1. One multiple--use paved area
2. Six tennis courts
3. One baseball diamond
4. Two softball diamonds
5. Two football practice fields
6. Track

Multiple - Use Paved Area

This area is a paved all-weather space of varying degrees of resiliency for all games requiring hard surfaces. It provides for many activities using courts of standard sizes, such as basketball, volleyball, badminton, tennis, paddle tennis, handball, and shuffleboard. It also provides for activities requiring areas of variable size, such as dancing, circle games, and games of low organization. Softball diamonds are often developed on this area when local soil conditions warrant.

Size: This area should be 60' x 80'.

Surface: Bituminous concrete has the following desirable features when laid: year-round usefulness; multiple use; range of textures; firmness of footings; durability when proper grade mix specified for the geographic location is used; varying and satisfactory degrees of resiliency; available in most municipalities at reasonable cost; low maintenance cost when properly specified and laid under constant supervision of a qualified inspector; has neat appearance; easy to repair; no glare; black color blends well with the landscape; can be market for court games; and has fewer disadvantages than other types of surfacing materials.

Tennis Courts: Tennis courts should be constructed according to standards recommendations which are 36' x 78' per court. Normally, the courts are oriented in a north and south direction and should be enclosed by a fence about ten to twelve feet high. The fence should be placed upon the hard court surface which extends about six inches beyond the outside of the fence to simplify the mowing of grass around the fenced area. In constructing outdoor courts, a slope has to be provided to ensure proper drainage. A slope of one percent is maximum for any locality.

Lighting: In planning artificial outdoor lighting, the following precautions should be observed: direct light rays should not strike the eyes of players or spectators, with players given preference; glare should be avoided; all shadows and spottiness should be eliminated or minimized; no obstructions should interfere with the lines of vision within the field of play; and care should be taken to avoid annoyances to neighbors due to stray light beams.

Wiring should be located underground to avoid overhead wires, and steel poles are recommended to support lighting units. Moisture-proof lighting units should be used. Where lighting units are located within hazardous ranges on ball-playing areas, guards should be provided for their protection.

The extension of the use of outdoor facilities through night lighting should be considered on the basis of better meeting the needs of a greater number of people. Extension in the hours of use will be a real economy. The desire on the part of people to participate or become a spectator in the evening when the days are short, the unfavorable heat during the day, the increased patronage and interest, and the possibilities in the reduction of facility costs per participant are a few factors to be considered.

Surface: The surface of tennis courts will be made of concrete. The advantages of concrete surfaces are: positive year-round utility; multiple use; minimum maintenance; can be made smooth or rough for specific uses; can be colored; can be marked for court games; is durable; and has good appearance. The design and specification requirements are extremely important in order to obtain good-quality concrete.

Color: Color for its aesthetic value in a recreation setting is not to be under estimated. Intelligent and imaginative use of color in connection with outdoor facilities and equipment can add to the enjoyment and novelty as well as the harmony of the total color scheme. Green, blue, red, black or white has its place on the tennis courts. I prefer blending shades of red and blue.

Field-Games Area

Field-games area include: one baseball field, 2 softball fields and 2 practice fields. The fields should be oriented to give protection to both players and spectators, with major consideration to those players who need it most. It may not be possible to get the best orientation of a particular court or field because such factors as topography, shape of the area, and location of other facilities may dictate some variations.

Fields should be oriented so that the late-afternoon or early-morning sun rays will intersect the general path of the flight of the ball at an angle of approximately 90 degrees. Otherwise, players on the eastern end of the field during afternoon play will have to face the sun. In rectangular fields, the general pattern of the ball's flight is parallel to the long axis of such areas. Therefore, the long axis should be generally at right angles to the late-afternoon sun rays. Locate the sunset position at mid-season of the sport and make the field or court accordingly.

On baseball, softball, and similar fields, the general pattern of the ball's flight does not parallel any axis; instead, it covers an arc of more than 90 degrees. The field cannot be oriented to give equal protection to all players and spectators; therefore, a choice must be made. Since the batter, pitcher and catcher are in the most hazardous positions, they should receive first consideration. The field may be properly oriented by ensuring that the imaginary line from home to second base is at right angles to the rays of the late-afternoon sun.

Turf: It is generally agreed that grasses are the best ground cover for most field-game areas. Furthermore, large turf areas contribute to the psychological and aesthetic values of the area. Strains and mixtures of grasses should be selected that thrive in the locality in which they are to be used and that are resistant to intensive usage.

Practice Fields

Practice fields should be laid out in order to provide for maximum participation in such large-space games as football, touch football, fieldball, field hockey, soccer, speedball and in some cases it may also be used for band practice. Fields, backstops and goals for the various games should be laid out in such a way as to permit overlapping use of the area during different seasons. It should be approximately 200' x 400'.

Baseball Diamond

The baseball diamond layout should be based on the following total playing area, including a 30' strip, 132,500 sq. ft. outside of each foul line, 22,500 sq. ft. infield area, and 110,000 sq. ft. outfield area.

Softball Diamonds

Softball diamonds for all practical purposes should be placed back-to-back. Each diamond should be 250' x 250'.

Backstops. Backstops should be provided whenever necessary for the protection of spectators and for increasing the tempo, zest or interest in any activity. Special designs to meet the needs of individual situations are often required. Movable backstops of the batting-cage type provide flexibility and are frequently desirable on play areas. Chain-link fabric with a galvanized steel framework is recommended.

Outdoor All-Weather Track Specifications

An all-weather surface has many advantages such as little or no maintenance, non-skid qualities, surface consistency regardless of weather, permanent color-coded lines, less serious injuries due to spills, and a longer period of use in this climate. The greatest testimony of all, of course, is the high regard which the athletes have for this surface. Pin spikes, all-weather track spikes, rubber ripple soles, and any rubber-soled shoes work very well on this surface. Spike holes tend to reseal under the pressure of continued use. There is no slippage whether the surface is wet or dry.

Layout: The running track consists of a straightaway of a minimum of 240 yards and a quarter-mile oval track. A minimum area for the track would be four acres and its orientation should show the long axis running north and south. When combined with the football field within the track, the football field determines the orientation. THIS AREA IS TO BE LIGHTED FOR NIGHT MEETS and the Mercury-vapor Lamps should be on poles of 80 feet with provision for outdoor seating for possible use as spectator seating for varsity football games as well as to view night track meets. If the area is large enough and provision for a first class track is granted, then the track should have two 220 yard straightaways. A school will save in labor and maintenance with an all-weather track.

Studies seem to show that a new surface developed by Eastern Rock Products, Inc., of Utica, N. Y., has proven the best material for the all-weather bituminous track. This material is called "CorKarpet," and it is a mixture of granulated cork, bagasse, pulverized limestone and asphaltic cement containing pure liquid asphalt and pure powdered asphalt. This mixture can be laid under almost any weather conditions which eliminates work delays.

The track should be 28'8" wide to provide for eight 40" lanes with a foot clearance on each side on all straightaways and around the entire 440 yard oval. Runways for the pole vault, broad jump and triple jump are 4' wide and 154' long. The javelin runway is 4' wide except for the last 10 yards which should be 6' wide and 116' long. The semi-circular high jump runway should have a radius of 30'. All runways are also "CorKarpet." Throwing circles for the shot, discus are concrete.

In a similar construction, a large "Gradall" excavated approximately 5300 square yards to a depth of 14". It took 20 hours.

The sub-base should be composed of 8-10 inches of compacted gravel; the base is 4" of 1½ (top size) crushed stone to provide stability and sub-drainage. This foundation should be penetrated with hot liquid asphalt applied at the rate of 2 gallons per square yard. The leving course of 1½" of type A plant mix asphalt should be laid 12' wide and exactly the necessary thickness to maintain the grade and slope. (This can be laid by a large paver using an electronic arm which can ride along piano wire strung to grade about 6" inside the measured distance of the oval.)

The "CorKarpet" Track Mix, which is to be put through a shredding machine to screen out any balls of the mixture, is leveled to 3/4" by hand for the top dressing. A 10 ton roller can compact each course of this. The "CorKarpet" compacted to ½". Three courses of sealer should be applied to build up to approximately 1/16" to seal and prevent rutting and displacement of the "CorKarpet."

During the leveling course the track was sloped to the outside at the rate of 1" in 10'. After this course is laid, Ryerson steel curbing should be inserted on both the inside and outside of the track, the top of which is flush with the finished surface. This is installed as a container for the track and to prevent any possible creeping of grass into the surface.

Runways are to be constructed in the same manner as the track except that the sub-base, base, and leveling course should be screened by hand due to the 4' width.

All lanes, starting and finishing lines, hurdle marks, and relay zones should be of latex paint, sprayed on to a width of 2" by a highway marking machine. The curb or pole should be a white line 4" wide, thus eliminating the dangerous raised curb. All lines are color-coded to avoid confusion.

The track should surround the football field and should be enclosed by a 4' high chain link fence with two 4' gates on each side of the 50 yard line, two 4' gates at each side of one end zone, and two 20' gates (one at each end of the field) to allow mowing machines, etc., to enter the field.

Holes for starting blocks should be driven in the surface and ½" copper pipe inserted to accept the starting block pins.

The high jump and pole vault pits should be made of foam rubber and polyfoam, eliminating the problem of digging pits. The long jump, triple jump pit should be 9' wide and 27' long. The end of the pit should be 30' from the long jump take-off board and 65' from the triple jump take-off board.

All throwing circles for the shot and discus should be located outside the track enclosure. The shot landing can be a surface of 8" of crusher dust which makes for a well-drained sector and one that is easily raked level but remains firm.

Consideration should be given to such factors as the prevailing wind, location of the sun in the afternoon, and safety in laying out the entire facility. The polevault and long jump runways should run across the field at one end while the high jump and javelin runways are on the opposite end. The javelin runways run parallel to the football field and end at the goal post line.

The cost of construction would depend upon climate, depth of the water table, distance from asphalt plant, sub-soil, drainage, etc. Cost of an average installation would probably run in the neighborhood of $6.50 per square yard, exclusive of curbing and painting the lines.

Experience shows that the tracks of this type would not need a coat sealer for about eight years.

Drainage must be considered in the planning of this field. Under the track and about 2' from the inside curb, open agricultural tile drain lines should be installed in a bed of broken stone or screened gravel. Two-thirds of the surface of the joints should be covered with a strip of wired on tar paper. The drain lines connect to 4 leaching type catch basins or dry-wells in areas where ground water is not encountered. Otherwise they are connected to a storm sewer line. The catch basins should be located in the four corners of the track and about 10-15 feet from the track's curb.

Starting and finishing posts should be provided for all events. Posts should be of rigid wood construction (3/4 by 3" by 4'6" high) and are placed with the 3" width at right angles to the track.

A portable judges' platform is usually provided at the finish line of track events. A scoreboard is essential for football games. The board should be located for easy viewing from the farthest bleacher seat.

SPECIAL EDUCATION AREA
for
EDUCABLE MENTALLY RETARDED

I. General Considerations

The teen-age educable mental retarded should be able to receive part of his instruction (selection made on individual basis) in specific areas of the regular secondary instructional program. The special class would then provide the individual instruction on a one-to-one basis and/or in a small group setting. Such an arrangement would require that instructional areas in the special class be organized to serve two purposes: (1) that of providing instruction to supplement work in regular classes, and (2) that of furthering the development of interests and special needs of mentally retarded youth.

In order to meet the above needs, the following instructional areas need to be planned for a secondary level program:

A. Kitchen area with counter, sink, stove, refrigerator, and storage for cooking utensils, small appliances, serving dishes, and supplies. (Note: emphasis will be on preparation and serving of foods in a variety of home and/or social situations.)

Social area with living room furniture to be used for providing experiences in entertaining, assessing individual behavior as a member of a social group, and as a quiet area for individuals needing to leave the larger group when not in use for the above purposes.

B. Sewing and grooming area with sewing machine, ironing board, iron, full length mirror and storage for individual projects. (Stress mending and related care of clothing.)

Shop area with heavy shop table, 1 vise, saws (one power), tools, and storage for individual projects as well as for tools, materials, and supplies. (Stress projects such as refinishing, and making or assembling of models.)

C. One small group work area which may be centered around two square tables comparable in size to those found in corner drugstores or eating establishments.

Academic Area - Provision should be made whereas the area can be darkened for film and filmstrip projections.

II. Space Needs

Because of the many instructional centers and the movement of large teen-agers from one center to the other, the space needs will have to be considered on that for the total instructional program rather than per pupil. The recommended classroom area is a minimum of 1200 square feet. The most practical arrangement of facilities is a suite of rooms. The academic area, small group work area, and social area would be located in the largest room which carries the heaviest traffic of students. Two smaller rooms would then be provided to one side or across one end of the largest room. One room would be used for the kitchen and the mending and grooming area, while the other room would be used for the shop area and storage of individual projects and supplies.

Maximum desirable number of pupils per area at any one time:

A. Academic area - should be able to accommodate 15 youth in individual seating (lockers in hall should be used for storage).

B. Kitchen area should be able to accommodate 4 or 5.

C. Mending and grooming area should be able to accommodate 3 to 4.

D. Shop area should be able to accommodate 5.

E. Social area by combining with the neighboring small group area should be able to accommodate the class group (individual chairs from other areas can be used with the furniture in the social area).

III. Traffic Circulation and Areas of Pupil Concentration

Since there will be many occasions when there will be pupils working in all the instructional areas in the room, the physical facilities provided for separating the different centers should permit the teacher to view all activities in the room in order to be able to move with a minimum of confusion to the area where he is needed.

If the suite of rooms is chosen, part of the wall between the larger room and the smaller room should be glass.

IV. Furniture and Equipment

A. Academic Area

Individual seating for 15 pupils with consideration for size of pupils enrolled (storage should be provided in the lockers provided for secondary pupils in the building).
Teacher's desk and chair
Film cabinet with lock
Screen for film projection

B. Social Area

1 divan
1 chair
1 record player and storage for records

C. Kitchen Area

Counter with sink
Stove
Refrigerator
Storage for cooking utensils, small appliances, serving dishes and supplies

D. Sewing and Grooming Area

Sewing machine (electrical)
Iron and ironing board
Full length mirror
2 chairs
Table for measuring and cutting (storage could be provided in specially built unit)
Storage for individual projects (minimum 8 drawers)
1 screen for changing clothes

E. Shop Area

1 heavy duty shop table
1 vise
Storage for tools, paints & varnishes, sandpaper, nails, etc.
Storage for pieces of lumber
Counter top for display of completed models (top of storage)

F. Small-group Work Area

2 square tables
8 chairs
1 storage section for group games, magazines, and newspapers

G. Closets

1 for teacher's personal material
1 for storage of general supplies and charts

1. 5 to 10 wide shelves which are 4 or 5 inches apart for storage of charts, newsprint, chart paper, etc.
2. Section of about 25 shelves which are 3 or 5 inches apart for filing of letter size papers
3. Section for storage of paints, vases, cans, paste, etc.

1 small closet in kitchen area for storing household cleaning materials

H. Chalk and Bulletin Boards

Chalkboard in 2 sections of the room

1. Academic area (recommended 8 feet)
2. Kitchen area for notations, schedules, etc.

Bulletin Board (cork preferred)

1. Sewing area for directions and samples
2. Shop area for mounting designs, schedules, etc.
3. 3 in general classroom (small one by door for general announcements)

I. Bookcase and Storage

Open and closed storage (more than average) since need to store variety of books, pamphlets, academic games, models, etc. used in academic program.

Counter top for placement of special assignments (above open and closed storage)

V. Special Utility Needs

Sink in counter in kitchen area (hot and cold water)

Electrical outlets (2) above counter in kitchen area for small appliances

Electrical outlets (2) in grooming area for iron and sewing machine

Electrical outlets (2) in shop area - sander, drill, etc.

Electrical outlet in social area for record player

Electrical outlets in kitchen area for stove and refrigerator

Large electric clock

Provide for closed circuit TV

SCHOOL LUNCH FACILITY

Educational Outcomes

The school lunch program is the daily health laboratory for the total school. This is the area in which the student learns of balanced meals, and, in fact, sees them. This is the place in which students learn basic nutrition and where they will receive one-third of their food needs, including meats, fruits, vegetables, bread, butter and milk. This is the place where students will learn social graces, including handling of their silverware, etc., and common courtesies. This will be a place to learn living and citizenship. This facility will enrich the school curriculum. This facility will provide desirable and pleasant surroundings that go with desirable food service.

Trends

Trends in this area are to secure better equipment in order to save labor costs. Proper arrangement and careful selection of institutional sized equipment for quantity. Food production saves labor and makes for an efficient kitchen. School boards need to see the necessity to prepare a policy manual concerning cooks and kitchen equipment. This policy should include items such as retirement, selection of personnel, insurance, salary policy, contracts, lines of authority, responsibility of personnel and it should include use of the facility by outside agencies.

Activities

The activities to be carried out in this area will be to provide food service at low cost so that all children, regardless of their ability, may participate. The area needs to be designed so that it may be used for multi-purposes.

Orientation and Relationship

The facility must of necessity be on the first floor level. It must have a service drive equipped to receive and handle quantity food deliveries. This service drive must be away from congested areas. Provision needs to be made for use of this facility by community groups and adequate space needs to be allowed for the storage of accessory items. This facility needs to be conveniently located to accommodate the flow of student traffic within the building.

Space Requirements

In the dining area, ten to twelve square feet per student is required. Both the kitchen and the dining area need to be acoustically treated. In the kitchen area, two to two and one-half square feet per meal served would be adequate, aisles should be a minimum of forty-two inches and a maximum of forty-eight inches in width. The area should be well lighted with fifteen candle-power to be achieved by two watts per square foot. The floor should be a non-skid material with a cove base-shoe. Walls need to be smooth and have impervious finish to water perhaps as a glazed tile. The floor should be level and the drains should have little or no pitch. The kitchen needs to be equipped with adequate and numerous electrical outlets on all wall areas and center-equipment island. The solid center, cook center, serving windows, outlets for fans and for portable tables need to be provided.

Storeroom Area

The dry-food storage area should be one-half square foot per meal served. This area needs to be well ventilated with no compressors or heat pipes.

Furniture and Equipment

Convention ovens seem to be popular and are recommended. A stack of two convention ovens would be needed. School lunch rooms bake all their own bread plus the main dish, bake desserts, cakes and cookies. A steam-jacketed kettle should be provided with a forty-gallon capacity to use in preparation of chili, beef-stew, spanish-rice, etc. A steamer should be provided, compartment type with two doors. A sixty-quart mixer is indicated, with a dolly, two bowls, dough-arm, vegetable slicer and shredder, dice and cubing attachment along with an adapter for a forty-quart bowl. An eight-foot bake table should be equipped with overhead spice bin, which would be optional, along with three roll-under bins, section of drawers and a wooden top. A salad preparation table should be provided. A cook table should be installed having a stainless steel top with one drawer open from each side and a pan rack should be provided under the cook table. A potato-peeler should be provided and is recommended. A vegetable preparation sink should be made available with a twenty-four by twenty-four, fourteen inch dimension. A pot-sink should be provided, with three vats, thirty by twenty-four by fifteen inches, four-gage stainless steel. A drainboard should be provided with all sinks. The Kawanee dishwasher was discussed and has many valuable features. The temperature of the water can be controlled at one hundred and eighty degrees for rinse. A pre-washer and drain-washer should be provided. If the alternate Hobart AM-8 is considered, this would require also a soiled-dish table and a clean-dish table and a pre-rinse, along with a garbage disposal.

Three carts should be provided with lowerators as compartments for serving trays. A hand-washing sink should be provided. An office should be provided eight by ten in size with glass windows, along with table, two chairs, desk and filing cabinet. Optional desk space should be provided.

Utensil racks and cooling racks are needed. They should include a cabinet and pan racks. A freezer would be required, six foot by eight foot, walk-in type. A walk-in refrigerator, eight by ten, would be needed, wire-recto shelving should be placed on one side and would be desirable. A twenty-five by thirty-five cubic foot reach-in refrigerator would be needed. The compressor should be placed on top. A milk-chest would be required. It should be placed in the serving line with a six or eight foot capacity. This should be a drop-side, serve-yourself, storage chest.